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THE NEW WEST:

OR,

CALIFORNIA IN 1867—1868.

CHARLES LORING BRACE,

AUTHOR OF

"THE RACES OF THE OLD WORLD;" "HOME LIFE IN GERMANY;"
HUNGARY IN 1851;" ETC., ETC.

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PREFACE.

"THE NEW WEST!" Within a few years "The West" has ceased to be the great prairie region of the American Continent. The prosperous States founded there are now the Central States of the Union. Beyond those rich fields, beyond the wide and half-barren plains, beyond the Rocky Mountains, the alkaline deserts and the Sierra Nevada, is another region, which is "The New West," with a different climate, a changed flora and fauna, a strange scenery, and new outline of landscape, novel productions, and conditions utterly unknown to our branch of the Anglo-Saxon race. Here, under circumstances, in many respects more favorable than the Anglo-American has ever enjoyed, a new and powerful community is springing up, and possibly a new race forming. This land is mainly *terra incognita* to Americans.

My plan in this work is to sketch such features of California and her process of development, as most travelers have thus far neglected. In this view, I have taken least interest in her mining enterprises, but most in what is to be the basis of her future prosperity—her agriculture, fruit-culture and vine-growing, and such undeveloped branches as silk-worm growing, and wine-making.

In treating of this latter, I may have spoken so plainly as to offend many in the Pacific States, but they must remember that nothing is so much needed by an important branch of production, like this, in its first beginnings, as honest criticism.

The treatment of the Chinese, by the lowest class, and the oppressive legislation upon them, have also been described without extenuation. The truth in such matters, is the best tribute a traveler can pay to the sense of justice of the more civilized Californians who detest these abuses equally with ourselves.

If in my outline sketches of this remarkable region and its vigorous people, I have given anything like my own impressions of the divine climate, the unique and awe-inspiring scenery, the singular and delightfully varied vegetation and productions, the enterprise, and intelligence, and generosity of the population; redeeming even the facts connected with the origin of their civilization, and the opening presented here for the surplus intelligent labor of our crowded communities, I shall have succeeded in my task.

Hereafter, when a powerful and cultivated society has been developed on the Pacific coast, and perchance a new and even more enlightened and prosperous Republic than its parent has been built up, these notes of its "Origins" may still be preserved to show what were the humble and primitive foundations of so grand a structure of civilization and prosperity.

CHARLES LORING BRACE.

HASTINGS-UPON-HUDSON,
April, 1869.

CONTENTS.

CHAPTER I.

THE TRIP TO SAN FRANCISCO.—Its Pleasures.—The Steamer Company.—Savants and Explorers.—The Isthmus.—A Railroad through a Conservatory.—The Panama Railroad.—Steamers to the Isthmus.—Tea-trade.—The Pacific Voyage.—The Pacific Mail Steamship Company; its Capacity and Success; Organization, Economy; its China Line; Competition with Pacific Railroad.—Exaggerated Expectations 13–28

CHAPTER II.

CRYSTAL SPRINGS CAÑON.—California Scenery.—A Romantic Cañon.—The Vegetation and Small Animals.—Wild Flowers.—Singular Trees.—The Red Woods.—Climate.—The Coast Range.—Objections to it.—Novelty of Aspect 30–35

CHAPTER III.

SAN FRANCISCO.—Difficulties of its Site.—A City of Flowers.—The Public Buildings.—Want of Parks.—The Dust.—Its invigorating Climate.—The Key-hole Breeze.—Summer a Cool Season.—The Success of Universal Suffrage.—Police.—Outward Marks of Civilization.—Evils of Hotel-life 36–43

CHAPTER IV.

THE FUTURE OF SAN FRANCISCO.—Tendency to leave the Interior for the Capital.—Climate favors the City.—Labor more Efficient here.—Education centers in it.—Its importance as a Center of Commerce.—The Connection with Asia.—A City of Expectations 44–48

CHAPTER V.

BUILDING ASSOCIATIONS.—The Success of these Companies.—Laborers securing Homes.—The Prosperity of the Laboring Class.—Wages.—The Labor-Exchange.—Its Success.—The Mint.—Its Business and Small Wastage.—The Accountability.—Statistics.—Eight Hour-Law.—Its Probable Failure.—Selling by Weight.—Want of Small Change.—The Manufactures of the City.—Splendid California Blankets.—Social Life.—Want of Unity.—Extravagance.—Troubles with Servants.—Evil-speaking.—Speculative Habits.—Temptations.—The Generosity of People.—A Droll Instance.—The Clergy and the Press . 49–73

CHAPTER VI.

THE PUBLIC SCHOOLS.—Their Excellence.—The Object-system.—Girls' High School.—Faults.—Cosmopolitan School.—School-system superior to the New York.—Want of Teachers.—Salaries 74–80

CHAPTER VII.

THE BIG TREES.—Preparations for Trip to Yosemite.—Clothing needed.—Drive to Bear Valley.—Dust.—Saddling.—The Mustangs.—The Wicked Mule.—Moonlight Ride.—Sugar Pines.—Clark's Ranch.—A Character.—Clothiers' Signs.—Forest-Master.—The Big Trees.—Mariposa Grove.—Their Number.—Causes of their Size.—Description.—Measurements.—Probable Age.—A Remarkable Flower.—The Calaveras Grove.—The Mother of the Forest.—Vegetation of the Foot-Hills . 81–94

CHAPTER VIII.

THE YOSEMITE CAÑON.—The Morning.—Start.—California Mustangs.—A Gay Horse.—Digger Indians.—Our Party.—The Guides.—Description.—The First Glimpse.—El Capitan.—The Brothers.—Evening View.—Its Origin.—The Descent.—Twilight in the Valley.—The Inn 95–105

CHAPTER IX.

THE YOSEMITE.—Mr. Hutchings' Hotel.—An Original.—A Pretty English Lady.—The Atmosphere of the Valley.—The Picture of Beauty.—Comparison with European Scenes.—The Yosemite Fall.—The Vöring Foss.—Cathedral Rock.—Bridal Veil.—The Tenaya Fork.—Nevada Fall.—Excursions.—The Tuolumne Cañon.—Mr. Hoffman's Account.—Mr. Hutchings' Claims.—The Departure.—The Stand-point of Silence.—Comparison of Routes 106–120

CHAPTER X.

THE SOUTHERN MINING COUNTIES.—Journey from Mariposa to Calaveras.—Great Quartz Vein.—Tertiary Deposits.—Table Mountain.—A River in the Air.—Romance of Mining.—Funereal Aspect.—The Miner's Grave.—Receipts from Southern Counties.—Copper-Mining.—Mine at Copperopolis.—Miners' Law.—Its History and Features.—J. Ross Browne's Description of the Code.—Different Size of Claims—Uncertainty of Mining Titles.—The Mining Act of 1866.—Its Favorable Effects on California.—Amendments advised.—Unity of Legislation needed . 121–136

CHAPTER XI.

THE DIGGER INDIANS.—A Digger Camp.—Their Physical Features.—The Dying Squaw.—Touching Funeral Ceremonies.—Their Religious Belief.—Tradition of Descent from the Wolf.—Their Degradation.—Customs.—The Diggers of Nevada County.—The Camp in Mariposa County.—Woven Baskets.—Grasshoppers for Food.—Wigwams.—A Branch of the Shoshonees.—

Perhaps descended from the Aztecs.—The Causes of their Degradation.—Perhaps the lowest Tribe on Earth.—Volume of Brain.—Comparison with Peruvian Skull.—The Antediluvian Indian.—The Calaveras Skull.—Found in Pliocene Deposits.—Table Mountain Skull.—Darwinian Theory 137–152

CHAPTER XII.

THE COLLEGE OF CALIFORNIA.—The Moral Teachers in California.—Their Value to the State.—The Rev. Dr. Bushnell.—The College Grounds.—Its Plan.—The Proposed University.—The Agricultural College.—Mining School.—Endowment of the University.—Japanese Students 153–160

CHAPTER XIII.

GOLD MINING.—The Foot Hills.—Ruin from Gold Washing.—Hydraulic Washing.—Gold Run.—The Blue Lead.—Grass Valley.—The Eureka Mine.—Great Profits.—The Hayward Mine.—Production of Grass Valley.—More Economical Mining.—Saving of Wastage.—Quartz Mining.—Good Luck.—Cement Mining.—Its Annual Yield.—Placer Mining.—Successful Operations.—Its Produce.—Gold Mining Processes.—Crushing and Amalgamation.—Mining Tricks and Failures.—Salting a Mine.—A Bogus Mine.—Scientific Reports.—The General Profits of Mining Doubtful.—Gold and Silver Product for 1867.—Whole Product since 1848.—The Northern Mines 161–181

CHAPTER XIV.

PACIFIC RAILROAD.—A Marvel of Engineering-work.—Its Difficulties.—Official Statement in Regard to the Union Pacific Railroad.—Wells & Fargo's Express.—Virginia City.—Its Aspect.—Stock Speculation.—Material Tendencies.—Need of Humane Men.—The Silver Miners.—The Comstock Lode.—Mount Davidson.—The Savage Mine.—Uncertainty of Investments.—Marvelous Success of Empire Company.—Gould & Curry.—Hale & Norcross.—Increase of Value.—Whole Yield.—Treatment of Ores.—Silver Mud 182–199

CHAPTER XV.

PROFESSIONAL ROBBERS.—Non-resistance of Californians.—Politeness of Gentlemen of the Road.—An Adventure.—Lake Tahoe.—Robbing by Stages.—Indifference of a Fellow-traveler.—Wild Scene.—A Volley.—Coolness of Driver.—The Skirmish.—Need of Mounted Police.—Shooting of three Robbers . . 200-208

CHAPTER XVI.

THE CHINESE OF CALIFORNIA.—An excellent Working Population.—Their Submissiveness.—Oppression.—Gradual Change of Public Opinion.—Their Importance.—Neatness of Habits.—A Brutal Scene.—Mining-tax.—Inadmissibility of their Testimony.—The Old Struggle of Humanity renewed.—Judge Axtell. 209-214

CHAPTER XVII.

THE CHINESE.—Visit to Chinese Merchants.—Courtesies.—Importation of Women.—Question of the Ballot.—Christianity.—Debate on the Exclusion of Chinese Testimony.—The Injustice of it.—Chinese Theatre and Temple 215-227

CHAPTER XVIII.

LARGE FARMING.—A Country-house.—Hospitality.—Olives, Almonds, and Peaches.—Ornamental Trees.—A Wheat Farm.—Volunteer Crops.—Threshing.—Livermore Valley.—Gigantic Farming.—Figs, Flax, and Hops.—Merino-sheep.—Wheat Yield of State.—Barley.—Indian Corn 228-242

CHAPTER XIX.

THE GEYSERS.—Napa and Calistoga.—Voss' Station.—Manners to Ladies.—Reckless Driving.—The Grizzly Bears.—Hot Springs.—Devil's Cañon.—Russian River Valley.—Napa Valley 243-252

CHAPTER XX.

WINE-GROWING.—Need of Honest Criticism.—Defects of Wines.—Want of Faithful Work.—Careless Wine-making.—Mistakes.—The Mission-grape.—Whole Science an Experiment . 253–259

CHAPTER XXI.

THE SONOMA VINEYARDS.—Production.—Mode of Planting.—Pruning.—Cost and Yield per Acre.—Best Varieties.—Process of Wine-making.—The Buena Vista Society.—California Champagne.—Process of Making.—Percentage of Alcohol.—Comparison with Hastings Wine.—Vineyards on Sierras and Foot-Hills.—Yield and Profit.—Raisins.—Catawba Wine . . 260–276

CHAPTER XXII.

LOS ANGELES.—Characteristics.—Appearance.—Beauty Exaggerated.—Bad Name. — Improvements.—Mr. Wilson's Vineyard.—Orange-groves. — Lemons. — Fruit-crop of Valley. — Figs. — Limes. — Olives. — Almonds. — Castor-oil.—Wild Mustard.—Immense Ranches.—Policy of Government.—Vaqueros.—Catching Bulls with Lasso. — Wine-making.—Angelica Port.—*Vins de Liqueur.* — Muscatel. — Profits. — Causes of Inferiority of Wines.—Morals of Los Angeles.—Climate.—Rain-fall.—Anaheim Vineyards 277–296

CHAPTER XXIII.

THE OIL-WELLS.—Petroleum Seas.—Santa Barbara.—The Agave Cactus. — Ground-Rodents. — Bees. — Wonderful Increase. — Cattle. — Sales of Land.—The Mammoth Grape-vine.—Silk-worm Growing.—Question of Temperance.—Pomace Brandy.—Brandy-tax. — Santa Clara Valley Vineyards. — Quicksilver Mines.—Process of Extraction.—Total Yield . . 297–310

CHAPTER XXIV.

AGRICULTURAL RESOURCES OF CALIFORNIA.—Depreciatory Opinions.—Amazing Development —Advantages for Production —

Large Yields.—Different Crops.—Increasing Capital.—Exports.—Wheat and Grain Harvests.—Silk-growing.—M. Prevost.—Advantages in California.—Statistics.—Silk-making.—Practical Instructions on Silk-growing.—Profits.—Silk-worms . 311–329

CHAPTER XXV.

THE CLIMATE OF PACIFIC COAST.—Data Wanting for the Science.—Northern-Coast Temperature.—Summer on whole Coast.—Winter.—Comparative Temperatures of Europe and Africa with those of the Coast.—Analogies of Climate.—Equability of Temperature.—Variety of Climate.—Comparison between Europe and Pacific Coast.—Rain-fall.—Dryness of Air.—Causes of Pacific Climates.—Water Cooler in Summer.—Interior Climates.—Influence of Arizona Desert 330–344

CHAPTER XXVI.

CALIFORNIA FOR THE EMIGRANT.—Division of Soil into Freeholds.—Development of Agriculture.—Society becoming Settled.—Who should not come.—Wages.—Female Labor best adapted for Small Wine-growers and Farmers.—Advantages . 345–350

CHAPTER XXVII.

WHERE TO SETTLE IN CALIFORNIA.—Avoid River-bottoms.—Foot Hills doubtful.—Coast Valleys best.—Sonoma and Russian River.—San Joaquin.—Bay-counties.—South of California.—Cheapness of Living.—Statement for Foot-Hills . 351–357

CHAPTER XXVIII.

THE AMERICAN PALESTINE.—Correspondences between Syria and California.—Productions.—Irrigation.—Job's Description of Scenery.—Land-slides.—Water-spouts.—The Miners' Work in Job.—The Droughts in both Countries.—Similarity of Seasons and of Fruits.—Wine-pressers.—Bible Scenes.—Dead Seas.—Geysers.—Mirage.—Flowers, Fruit and Wine . . 358–366

CHAPTER XXIX.

EFFECT OF CLIMATE ON RACE IN CALIFORNIA.—Indications of Race-changes.—Improvement of Type.—Handsome Physique.—Expanded Lungs.—Prolific Power.—Children Healthier.—Different Types.—Climate *not* All-powerful —The Principle of Inheritance.—The Political Future.—A New Republic.—New Race.—THE NEW WEST 367-373

THE NEW WEST;

OR,

CALIFORNIA IN 1867 AND '68.

CHAPTER I.

THE TRIP TO SAN FRANCISCO.

THE voyage from New York to California by the Isthmus had so often been pictured to me as a disagreeable and hard trip, that I was not at all prepared for the pleasures and varieties of it. Some of my impressions, no doubt, are due to the sensations of one just recovered from a tedious fever, and changing a sick room for the glorious ocean, with its airs of health and vigor. But, as an old traveler, I can honestly say, I know of no sea-journey in any part of the world to compare with this in variety and enjoyment. Instead of the stormy North Atlantic, with its cold and fog, and the reeling state-rooms, smelling of oil, bilgewater and eructated dinners, and incessant gale and mist and chill, each day a bore and burden, we had here a blue sea with "the innumerable smile," the sparkle of spring sunlight

by day, and the trail of molten silver by night, airs genial but bracing, only a ripple on the water from New York to Aspinwall, broad airy saloons, the state-room on deck, where, in your berth, you looked out, with a sense of delicious repose, on the blue waves of the Caribbean; meals with every variety and luxury, every thing clean and pleasant, and the long voyage varied by a railroad ride through a tropical conservatory and a change to a new and even larger steamer on the Pacific, with the best accommodations.

The California trip ought to be taken merely for pleasure, now that the traveler can enjoy the Pacific Mail Service.

We had an unusually pleasant company, yet characteristic of the coast we were about to visit. There was a Superintendent of the Indians, a rough, ready, warm-hearted man, with a great deal of information about his *protégés;* then several Mining Superintendents, men of much ability and energy; a young American gentleman, of a prominent New York family, and just graduated from Oxford, who was about to take charge of a mine in a remote mining town; young ladies, teachers, clergymen, mothers with families returning from a visit to the "East"; but, best of all for us, was a most interesting scientific party, Mr. CLARENCE KING and his corps, going out to survey the Continent on the fortieth parallel, under a Government commission. It was a truly American phenomenon: here was a young man of twenty-four who had already on the State geological survey of California, proved himself one of the most daring of living

explorers, and now was appointed by the Government to head the most important American scientific survey of this generation, one which would probably extend over a period of from five to eight years and embrace the investigation of the flora and fauna, the geology, meteorology, determination of altitude, and geography of the whole belt of the Pacific Railroad. A magnificent opportunity for a man of science, and which any *savant* living would hold an honor to be offered. Mr. KING is evidently as thoroughly trained in habit of mind as he is bold and heroic in action. The records of his exploits in obtaining the heights of unknown peaks in the Sierras would read like a story of romance. Nothing has been done in the Alps to equal them in daring and difficulty; though the explorations of the brothers SCHLAGINTWEIT, in the Himalayas, may have been as arduous. Mr. KING and his associates have discovered and ascended nearly to the summit of what is probably the highest peak of the United States, Mt. Whitney (over 15,000 feet); he also climbed Mt. Tyndall (14,386 feet), and Mt. Hoffman (10,872 feet). His stories of his years of wild life on the plains and among the mountains showed what a field of manly training and scientific work there is now on the Pacific slope for our *jeunesse dorée*, who have no taste for business or the professions. The civilized man comes down and gathers up the best qualities of the barbarian—quickness of hand and eye, firm nerve, contempt of cold, hunger, and privation, power to use his body to the best advantage, and the ability to front coolly danger and death—and

with them he combines all which training and culture have given, to gain new conquests over Nature and to advance the frontiers of knowledge. It is a good thing to see such aims and works in an age of fraud, profit, and comfort.

One person on board particularly attracted our interest, Mr. J. C., a Mining Superintendent, and a self educated geologist and philosopher: he is a type of a class which undoubtedly exists in California, and I suppose nowhere else in the world, of men who have read little of books and seen little of the world, but who, in their lonely rambles and "prospecting" among the mountains, have studied Nature profoundly and philosophically, as very few men ever do.

Mr. C. is known to science, as having first detected the evidence of glacial action in the Sierras, and I have been assured by our first geologists, that his crude theories and investigations on the formation of mineral veins, the ancient changes of climate on the Pacific coast, the lines of upheaval, the sources of the lava overflow and the like, were worthy of the most profound consideration by the ablest investigators. He did not weary, sitting on deck under the tropical star-light, discoursing by the hour, to my wife and me, as we watched the glorious Southern Cross or the phosphorescent wake of molten silver behind the steamer, of the phosphorus which the ocean had taken up from the atmosphere, of the future moon which he saw in the Zodiacal light then rising with lengthened cone from the waters, and of the gradual passage of minerals from gases and water into

mineral veins, and various problems connected therewith. He was naturally an ardent follower of Herbert Spencer; but it was curious that both he and the other geologists were *catastrophists* in their theories of the Pacific coast, and none of them were sufficiently acquainted with the grand discovery of this age, the law of Natural Selection, and its bearing on all branches of scientific investigation.

We enjoyed each moment of the sail through the West Indies and the Caribbean—that sea of such delicious blue that Humboldt suggested the poetic explanation of its color being caused by the dust of coral-reefs mingling with its waters: the peculiar state of moisture and consequent refraction of the atmosphere is the more probable cause. Here the flying-fish began to skip over the waves, sometimes scores rising just before the bows, and sailing or leaping often a hundred yards or more.

For several days before reaching the Isthmus, the heat was intense, and almost every one on board was more or less out of order.

The journey over the Isthmus has been so often described that I will say little of it. It forms a most delightful break in the long voyage, and would be worth the trip to Panama, alone, to enjoy. The true equator of heat on the western Continent is on this Isthmus, and the traveler has the rare opportunity of seeing tropical jungles, palms, mangroves, and bananas, draped and bound together with lianas and the parasitic vines of hot climates, with the superb flowers and birds and insects of an equatorial forest,

while riding in a railroad car, secure from malaria, and enjoying all the comforts of civilization. It is truly a jaunt through a conservatory.

The astonishing number of different palms* surprises one; the tree-ferns, the superb yellow or white flowers covering large forest trees, the marvelous growth of parasites, the callas and exquisite water-flowers in the pools where occasionally a large alligator rolls lazily in, the chattering of monkeys in one or two thickets, and the flight of brilliant paroquets through the forest—these are the features in one's memory of that scene of rich tropical luxuriance on the Panama Railroad.

As a work of engineering and difficulty it is most remarkable; and one can well believe the current saying that every tie on the track has cost a human life. It is now, and always must be, a most important and lucrative transit. Nothing can fully compete with it, or withdraw large portions of its business. Its main traffic will always be with the Central and South American countries, as it is the nearest link of communication between eight millions of people and Europe. In 1860, its Californian freight business was less than one-fifteenth of its whole trade; in 1867, it was about one-third.† It is computed that the value of the trade between the South and Central American countries and the Atlantic is over $60,000,000 per annum.

The new trade opening now between New York and

* Twenty-three varieties are classified on the Isthmus.

† Dr. Otis. "Isthmus of Panama," &c.

Japan and China, by the Pacific Mail steamers, may also throw a new and profitable business into its hands. Nine large steamship companies run now in connection with this road. The Pacific Mail, with twenty-five large steamships; the Opposition Company, from New York and San Francisco; the Compagnie-Générale Transatlantique, connecting with France and the West Indies; the West Indies and Pacific, running to Liverpool; the West India and South America; the Royal Mail for the West Indies and Southampton, England; the New Zealand and Australian, running to the British Colonies in the Southern Pacific; the British Pacific, for the west coast of South America; and the steamships of the railroad connecting Panama with Central America.*

From their peculiar geographical position, the Company enjoy almost a monopoly—good judges doubting if a canal can ever be built which will compete with them. The consequence of their advantageous position is that their charges for passengers are enormous—twenty-five dollars gold—for a journey of forty-seven miles. And their service is not at all of the first class. There is no station at all under the rain or hot sun at Aspinwall, and quite a little walk must be taken from the steamer to the cars, which ought to be avoided. The station at Panama is but a poor one; the cars are not well ventilated and have no supply of water, a necessity in that hot climate. Still the road is carefully managed, and has hardly ever met with an accident.

The great competition it will meet with in the

* Otis. "Isthmus," &c., p. 55.

future, in the Californian trade, will be from the Pacific Railroad. But this will only be in light and expensive freights, and first-class passenger traffic, and will not materially lessen its profits. How far the tea-trade between the Eastern coast and China is to come this way, is still a question. The transhipments are a great objection, and time is not, except with a few of the first cargoes, a very important element. The freight on tea, by the long sea route, from Hong Kong to New York, is about *two cents* a pound (or about the same as from New York to Chicago); by the Isthmus route it is about six cents and a half, with a gain of sixty days in time. The Company expect, however, to make the trip from Yokohama to New York, in 1869, in forty-five days in summer, and forty-eight in winter. The tea importers with whom I have spoken say that the advantage thus far over the long sea route is not of great account. They do not believe that tea will ever come over the Pacific road for the Eastern coast. Still no one can predict as to currents of commerce, and thus far tea *is* forwarded over the Isthmus and apparently pays to lay down in New York, in limited quantities, even at the present high rates of freight.

PANAMA is one of the most beautifully-placed towns in the world, and the views from the harbor are unsurpassed. We were taken aboard our steamer—an immense one, the *Constitution*—on a tug-boat, and had some hours to enjoy the various aspects of the Bay. The run up the coast was even more delightful than that on the other side. The accommodations

were luxurious, and we were often in sight of the grand volcanic chains of mountains along the coast of Central America and Mexico. The Pacific deserved its name, and hardly more than a ripple disturbed its blue surface all the way to San Francisco. A delicious land breeze blew every day from the coast, tempering the fierce heats; and we lay in our berths, watching the blue waves and distant peaks, or reclined in easy chairs, having the very perfection of *dolce far niente* life on sea-board. A little stay in the land-locked harbor of Acapulco varied the voyage, and off Cape St. Lucas the cool, invigorating breezes of the Northern Pacific began, causing white linens and muslins to be put away, and thick traveling-suits to appear again.

THE PACIFIC MAIL STEAMSHIP COMPANY.

I should not close my sketch of the trip to California without speaking of the great commercial Company which seems destined to open new currents of commerce to the United States, as the Dutch East India Company did to Holland, and the British to Great Britain. Here, on the coast, the great link of California with the world outside, and its future connection with newly-opened marts of commerce in the Orient, are through the Pacific Mail. This important commercial corporation, one of the most powerful and wealthy now existing in any country, are sailing a fleet of first-class steamers, such as many an old kingdom in Europe would be proud to possess. There are now some twenty-five large steamers floating their

flag, with a combined capacity of 61,474 tons, connecting California with the Isthmus and New York; while, on the other side, they are binding Japan and China to the Pacific coast, and, if the expectations of most Californians be well founded, are soon to turn a golden tide of commerce and travel from Asia to our far Western States.

The remarkable success of this Company, increasing year after year, through such long, difficult, and expensive voyages, is a marked contrast to the failure of the American marine on the Atlantic, where sharp competition has driven us from the field. For a student of organization it is well worth inquiring to what this brilliant success is due.

We believe it is especially owing to thorough organization, and then to what we may call *honesty of work*. The present President of the Company is reputed to know every officer, and the detail of every ship, in all their large fleet. His associates in the office are thoroughly acquainted, each with his own branch. The Board of Management has men in it of cautious, far-reaching, organizing brains, and who are determined that whatever public service the Company does, it shall be done thoroughly and in good faith. The consequence is, through all the extended administration of this Commercial Board, there is thoroughness and exactness. The work is done, as they promise it shall be done.

I have been exceedingly struck with this organization on this journey—a voyage altogether of some 5,300 miles through a hot climate, where a defect of

management might bring about unpleasant results. Having traveled on most of the great Atlantic and European lines, I can truly say that I have never witnessed an equal organization, the only fault being some small defects in forwarding baggage on the Isthmus.

Take the matter of coal alone, which, burned at the rate it is on a Cunarder, would cost the Company from $2,000 to $2,500 a day, while, by invention and economy, it is reduced on some of their steamers to some twenty-four tons a day, or some $530, and on the *Constitution* to fifty tons, or some $1,100 per diem. On their steamers running between San Francisco and Japan, over five thousand miles, with one thousand seven hundred tons of dead weight, two thousand tons of merchandise, and one thousand five hundred passengers with baggage, and an average speed of two hundred and twenty sea knots per day, the coal consumption is only *forty tons* per diem.

The fire-alarm was tried several times on the voyage with a perfect organization. On the *Henry Chauncey* more than a dozen streams were playing in about two minutes and a half, and the boats were all manned. Near Cuba, a man fell overboard, and went down nearly a mile astern. Within ten minutes, the steamer was stopped, a boat put out, the man picked up and brought aboard.

The accommodations and table on both sides are unequaled, the latter even being provided with delicacies, such as canned fruits, canned vegetables, and fresh tropical fruit, seldom known at sea. The

immense importance of cleanliness is recognized, and men are employed the whole time in sweeping and swabbing decks and guards. Every morning each state-room is carefully inspected by the officers of the ship, and the privies and closets are disinfected; neither of which useful sanitary provisions, so far as I have seen, are ever adopted on Atlantic steamers. The climate of the Pacific, no doubt, favors commodious and spacious arrangements, as it must also aid economy, for some of these steamers are sailed, it is said, with only a dozen sailors. No traveler could avoid being impressed with the moral order of these great floating hotels. We had on the *Henry Chauncey* and then on the *Constitution*, over a thousand passengers, thus brought together for three weeks. During that time there was no quarreling, no gambling, no hard drinking, and the Sundays were observed with more seriousness and devotion than in most hotels on shore. Of course, much of this is due to the increasing civilization and good order of the Californian community, but much also to the strict regulations enforced by the Trustees of the Company. The religious community of the Pacific coast, we have reason to know, feel many obligations to Mr. McLane, Mr. Potter, and their fellow-managers for the good moral rules they have carried out on these ships.

So exact is the organization that it is said the net returns of each trip of these steamers are as well known at the end of the voyage, as the profits of a petty retail shop after the day's business is over.

Most of the Captains of the line are old, experienced

officers, several having been in the navy, and a good officer is not often allowed to be lost, even if he lie idle awhile.

The results of years of this exactness and thoroughness, of liberal providing where liberality is necessary, and of economy where saving must come; of doing their work well and faithfully, have been to throw the main part of the traffic between the two coasts of America into the hands of this Company, and to furnish profits to the original stockholders such as are seldom gained. Their assets have increased from $4,000,000 in 1861, to $22,000,000 in 1868, during which time their profits were the enormous sum of $14,935,988. There has been, too, a wise and far-reaching provision in the arrangements of the Company. The line does not depend alone on California. On our steamer were travelers to various parts of South America and to Australia and New Zealand, the latter connecting with English lines at the Isthmus. The last steamer from Aspinwall carried over forty British passengers from Australia, bound for England, *viâ* New York. When Mexico is pacified, a great business will undoubtedly grow up on the Pacific side, between all parts of Central and South America and California and New York.

Freight is becoming a very important item. The *Constitution* brought down in sacks what would be equivalent to fourteen thousand barrels of flour from San Francisco for New York, and the last steamer had an equal amount. This export, of course, can not continue long, for it would be impossible for Califor-

nia to compete in wheat, in good seasons, with the Central West in the New York market, though it is said to cost less to carry a barrel of flour from San Francisco to New York than from fifty miles in the interior to the former city. But this serves to show how a good line opens commerce by taking advantage of special occasions and sudden wants.

The boldest movement of the Company has been the starting of a new line of steamers between San Francisco and Japan and China. The opening trips have done better than was expected, and paid their expenses, with a profit. No great result could reasonably be expected for several years. Commerce has to be created with those distant and semi-barbarous countries. The Chinese are apparently thus far demanding our flour to a limited degree, but there seems no reason why China, with labor only ten cents a day and immense wheat-bearing districts, should not ultimately supply her own flour. From Japan there has been a demand for California manufactures. Whether this will continue is uncertain. It is equally uncertain whether our steamers can divert the teas from China to England or to New York, and transfer them to this new route. This line will certainly bring great numbers of Chinese emigrants, and such goods as are consumed by Chinese in California. It will also supply the whole Pacific slope with teas, and silks, and rice. It may accomplish even more.

At all events, the far-seeing managers have determined to make the trial. A new link of communication of this kind creates new wants, and makes a

commerce. It will certainly divert much travel from China to Europe and America from the "Peninsular and Oriental" line. It is no doubt especially an effort to meet the vast changes in travel and commerce which are to begin when the Pacific Railroad is finished.

In a few years, when the traveler from New York lands in nine days in San Francisco, the first-class passenger business by this line, *viâ* the Isthmus, will be greatly diminished. Freights and emigrants will be their great reliance. Then their China line and a new European line may fill up the gaps made by the Pacific road in their income, and a new commerce with the Orient become as much a source of profit as has been the transfer of passengers to and from California.

Moreover, as California fills up with population, there must be an increased commerce by water to supply the country with luxuries, and to export its heavy commodities.

I had always supposed that the Pacific Mail would be obliged to change its side-wheel steamers for propellers, but they claim that they can run their boats now more cheaply than any propellers are run.

The principal organizing brains of the line are ALLAN MCLANE and HOWARD POTTER, and these are men who look far beyond any immediate effects, and, with a noble ambition, seek to open new channels of commerce and civilization for their country and the world.

The expectations current in New York of the gigan-

tic effect to be produced on the growth of the city by the approaching commerce with the Orient, seem to me greatly exaggerated. It is not New York that the Pacific road or the cheapened transit by the Pacific Mail steamers, will most benefit. It is the whole Pacific slope, as far as the Central Basin, which is to feel the especial advantages of the new trade and the new emigration. San Francisco will grow under it, and the towns of the Sierras, and Nevada, and Utah; but New York will be only distantly affected, and but little direct commerce, comparatively, take place between it and the vast East by the new routes.

And as to Chicago being especially benefited by it, or becoming a center of Oriental commerce and exchange, it seems to me one of the wildest dreams of the sanguine American brain.

CHAPTER II.

CRYSTAL SPRINGS CAÑON.

A FORTUNATE chance has placed me at once in a delightful retreat, with hospitable friends—one particularly refreshing after a long sea voyage, and which is really more characteristic of the country than the large cities. You leave San Francisco by the San José Railroad, one of the few railroads yet built in the State. The cars are comfortable, and the road seems well laid, passing over a country which the high winds have swept bare of trees, but which is covered with green grass and unusually gay wild flowers. The passengers look like any respectable railroad travelers on the Eastern coast, perhaps, on the whole, a tint ruddier and more robust, and fully as nicely dressed—the ladies often in quiet traveling dresses, and the gentlemen in good business suits, and gloved. We pass one or two picturesquely-built stone asylums or public institutions, and many modern suburban houses, with numbers of wind-mills for supplying water. The names of stations are foreign, and every thing outside has a foreign air. After some twenty miles and an hour's time, we stop at San Mateo, a little village, not unlike any of our new villages, though with a prettier stone church than is usual. The carriage drive now begins, and carries us by some roomy, comfortable villas, such as one might see near Cleveland or

Hartford, and then abruptly crossing a bright, sparkling stream, takes us along its banks a short distance, then over rolling hills, until we reach the Cañon. Even in this brief glimpse of the open country, every thing is new. Half a dozen lamas are feeding in the fields which we skirt; as we ride by, there is a scampering through all the fields of what look like gray squirrels with stumpy tails. Some stand on their little mounds and watch us. These are the ground-squirrels, that great pest to the California farmer, fairly honeycombing the ground and eating thousands of bushels of grain. No barns are visible, all grain being stacked. There are few trees to be seen, except on the watercourses, and there they seem to have an unnaturally dark green color. The hills are rounded and worn smooth, different from any that one sees in the Eastern States in outline. The distant mountains are more sharp, conical, and volcano-like than on our coast. We now enter the dark Cañon. That word is a happy legacy of the Spaniards, though no language has so many terms for mountain-features as our own. The cañon is not a gully, for that is too small; nor a valley, for that is too flat; nor a gorge, or clove, or pass, or ravine precisely. It belongs to California; its steep walls are the effect of countless ages of rushing water, or they are the sides of a great split in the mountains made by the tremendous volcanic forces which shaped this coast. It is darker, deeper, more awful than our New England ravines, more abrupt than usual mountain passes. The Crystal Springs Cañon, however, has more the character

of a wild Italian ravine. It was dark even at noon-day—the hard, well-watered road, smooth as a gentleman's avenue, winding in easy grades along the banks of a dashing crystal-clear stream, and beneath such weird trees. They were evergreen oaks (*Quercus crassipocyla*), different in effect from any tree I have any where seen, except now and then in Italy—precisely such as Salvator Rosa painted, and which a Ruskinian would say were impossible—heavy, moss-grown trunks, and great gray branches reaching out fantastically, without symmetry or harmony, the small twigs coming right out from thick arms, the branches of each tree twisted and contorted singularly, and the leaves a roof of small black green leaves, giving an impervious shade. These trees were often growing amid wild gray rocks, tossed about in great confusion, and covering the sides of the hills above.

There was a singular romance and strange wild character to the whole ravine, which I never tired of while in California. It was a beautiful object to have so near a large city. The cottage where was my summer home was outside of the Cañon, under some oaks, and on the verge of a considerable wood. The view there is characteristic;—rounded yellow hills, bare of trees, except occasionally dark green clumps with flattened tops, of evergreen oaks; the hills seem covered with grain to the very tops, but the crop is, in fact, generally wild oats, the great pasture in California, the seed no doubt originally dropped by the Spaniards, and, with that characteristic of domesticated plants,—a greater ability for the

struggle for existence than the wild (because it has contended with more enemies), it has extirpated the wild grasses of the whole Pacific slope and covers now millions of acres. The hills opposite our cottage are green with a thick growth of forest, and my friend, with admirable taste, has laid out miles of walks under the close shade and among the fantastic oaks. Among the tree-tops can be distinguished occasionally the magnificent dark green tops of the bay or laurel (*Cal. Tetranthera*).

There are elms on the low lands, and pines, oaks and beeches on the hills, the brush is full of game, which I shall begin to look after soon; and yet, though like, they are different animals from our own. The rabbits seem larger, and an enormous hare is seen occasionally; the quail are smaller, and the male has a beautiful crown on the end of a thin support of feather. These birds are not in season yet, and, as the game law is strict, they are undisturbed, and come out in flocks along all the paths. A peculiar feature of the woods are enormous rats' nests, some three feet high, made of twigs and moss. The small birds are all different from our own. A deer occasionally traverses the forest-openings to get to water, and now and then a "grizzly" is seen on the sides of the Cañon. All is different from the Eastern coast; the insects and ground animals are new, the musquitoes are smaller and more sluggish, the frogs have a strange note. We have come in at the end of the feast of wild flowers, but the meadows and hill-sides are still gay with the most superb flow-

ers. Evidently, many of our garden annuals are wild here. My wife never tires of gathering splendid bouquets of them, and decorating the house. Occasionally, as we walk through the forest, we are startled by coming suddenly on a bloody trunk, whose muscular, flesh-like branches have a singular resemblance to the preserved limbs of the human body in museums of anatomy, the *Manzanita* (*Arctostaphylos glauca*); and we almost see the old metamorphosis—

"Illa dolet fieri longos sua brachia ramos
* * * complectitur inguina cortex,"

or the *Madroña* (*Arbutus Menziesii*) with its trunk of a bright red, where the bark is stripped off, attracts us.

The woods are now sprinkled like snow with the white flowers of the buckeye, a horse-chestnut (*Cornus Nuttalii*).

On the far hills, toward the south, we can see the gigantic trunks of the superb "Red Wood" (*Sequoia sempervirens*), a most queenly tree, over two hundred feet high, and a near relative to the Big Trees. Its wood, polished and varnished, has a beautiful grain and rich color.

We are here in the extreme western part of the coast range, and only one chain of high hills separates us from the ocean. These hills guard us from the tremendous winds which sweep over San Francisco; at the same time, the air is cooled by the nearness to the sea. The dry season has begun; dust (that great infliction of California) is gathering on the roads, and the meadows are becoming brown, but the air is like the elixir of life. The days remind me of the finest

days under our Newport climate. A clear blue sky, a bright sunlight, with never a cloud; at ten o'clock the day really too warm, when the delicious sea-breeze begins, and all is cool and bracing; the nights always cool, so that we invariably have an open wood-fire—though it is June—in the evening, and are glad of a pair of the splendid California blankets at night.

One never tires under such an atmosphere. Of all human conditions, next to civilization and its advantages, the most important is climate; perhaps, for personal happiness, it is more than all other material circumstances. Here, it seems to me, you have it as near perfection as man can attain without enervation. Just at this point, except in sheltered spots, the air is too cool for the vine and the fig; but wheat grows splendidly, and on hill-sides the peach, plum, and apple. Further in, in the coast range, every temperate and semi-tropical fruit grows in perfection. And in the same line with us are some of the finest dairy farms in the world. I hear of one north of the city with one thousand five hundred milch cows on it; and there is one between us and San Francisco which must have hundreds. A friend of mine, with a truly Californian epigram, speaking of the immense Spanish cattle-ranches that used to be in existence here, says: "Those greasers,* they never know how to live! They had cattle on a thousand hills, and never a pint of milk to drink."

Even now, as is well known, California has to import butter and cheese.

* A name given to the Spanish-American settlers.

What has been accomplished already in a few such situations as this, shows what earthly paradises in the future will be created in the Californian Coast Range.

The great enemies are dust in summer and mud in winter. But here, with a little care, this beautiful road through the Cañon is kept smooth and free from dust, and, no doubt, in winter, paving or macadamizing would greatly lessen the incumbrance of mud. For invalids needing a bracing climate, this part of the Coast Range is very favorable; but for consumptives, a more inland, mild, and dry air would be better. Our winds are mainly from the sea, and yet the atmosphere has not the humidity to the feeling, of our own coast air. I observe, too, that decaying animal or vegetable substance does not give the same offensive odor as at home; it dries up. The entire want of cloud or rain, the power of the sun, and the highly oxygenated character of the air, blowing over such vast spaces of salt water, must be the explanation of these phenomena.

The whole region, and all its phenomena, seem to me more different from those of the Eastern coast, than Europe is from the Atlantic States. I am constantly wondering that people speak English. It seems to me that if a student of Nature from our coast were suddenly put down blind-fold in any portion of California, in the deepest forest, or on the mountain-top, and with only a few feet of horizon, he would know in an instant that he was not on the Atlantic slope, or in Europe. It is "THE NEW WEST."

CHAPTER III.

SAN FRANCISCO.

I DOUBT whether the Puritan Fathers, when they landed on the rocky coast of New England in December, had a harder task before them in building up a home, than the Americans, twenty-one years ago, who undertook to found a city on this bay. The site was simply a desert of sand, with hills of clay and sand, and a few ravines where grew the occasional low evergreen oaks which the violent ocean-winds permitted to exist. The air was filled with clouds of dust in summer, and the gulches and trails in winter were almost impassable with unknown depths of mud. There were no pleasant groves or green intervales such as must have greeted the first founders of New York, or deep forests such as sheltered the builders of Boston. Bare sand and rock were all the landscape, and the few green trees in the garden of the Mission Dolores must have been the only vegetation to show what might be done, in beautifying the desert spot.

But here American energy and perseverance have succeeded in founding a great city—mountains have been leveled and valleys filled up to accomplish it; millions have been spent to subdue refractory Nature —water brought from a mountain-valley, twenty-five miles away, to bestow fertility on the barren site;

beautiful lawns front many of the houses, flowers of indescribable richness and variety fill every door-yard, exquisite shrubbery adorns the grass-plats; there are long streets and hill-sides of comfortable houses with all the modern conveniences; massive hotels equal to the best of our coast, handsome shops, large warehouses, churches—some of them of much beauty—school-houses and public buildings of taste and good architectural effect. The wonder is that so much could be accomplished with such an unpromising site and such refractory material during the space of twenty-one years.

San Francisco should be called the "City of Flowers." Such is the power of this divine climate, that it only needs a little patch of sand and mould, with plenty of water, to produce the most magnificent vegetation. Every house, with bits of yards like ours in New York, makes the most splendid show of flowers; scarlet geraniums, ten feet high, lemon-verbenas which are small trees, fuchsias of immense size, callas in great bunches, splendid roses of many varieties, clambering vines, large cacti, gum-trees (*Eucalypti*) of Australia, and beautiful evergreens from Japan, Australia, and this coast—all left out through the year, and only needing plenty of water from the garden-hose. I have been much struck with a superb Norfolk Island pine in the yard of the post-office, which has been permitted to grow under the shelter of the buildings near by.

A walk through the city is a constant study of botany. I never cease admiring the rich evergreens

and magnificent flowers. Each householder keeps his garden-hose playing, morning and evening, and is rewarded soon by a paradise of vegetation. One of my friends tells me he makes his *walking-sticks* from his lemon-verbenas. In one yard I attempted to measure the height of a scarlet geranium which was fastened to a wall; it was over fifteen feet. Our friends, seeing our passion for these beautiful flowers, send us in superb bouquets.

Our residence in the city is usually on Rincon Hill; the views from this are most varied and beautiful, and in general the outlooks from the hills throughout the town are wonderfully fine. Its position, so far as water-aspect is concerned, is very fortunate. Few bays in the world can surpass this, both as a harbor, and for its grand sweep of view. One imposing feature, which I afterward learned to watch as a landmark during hundreds of miles of journey, is the volcanic-like peak of Mt. Diablo, but few miles distant, a mountain only some 3,800 feet high, but, owing to its rising directly from a plain, commanding one of the greatest horizons to be seen from any mountain in the world. The few public buildings seem to me unusually good in effect—better than our new buildings in New York: such for instance as the Bank of California, the Merchants' Exchange, and the Alms-House in the suburbs. Montgomery street is a neat and pleasant business street, and some of the new streets have a fine appearance. The city, however, can never be an imposing one. The necessity of using wood, and the custom of building low (perhaps

from fear of earthquakes), and irregularity of size to the structures, deprive the streets of any grand air. With all the immense energy and great wealth of the citizens, Nature could never be utterly subdued. There are no large trees in the city, and no parks. One of our most experienced landscape gardeners who was here (Mr. OLMSTED) believes that, under proper conditions, an agreeable park might be laid out. The grounds would have to be somewhat sunken and protected by hedges or otherwise from the sea-winds before shrubbery could be started; but when a proper shelter was once secured, a little water, and this wonderful climate would make the pleasure-grounds one of the gardens of the earth. A public-spirited citizen, who has succeeded so well with the What-Cheer-House, Mr. WOODWARD, has already opened some very pretty gardens to the public for a small entrance fee.

The dust, too, of San Francisco has never been properly subdued. Why such an enterprising population should permit so many streets to be almost unendurable from the clouds of sand, is not very comprehensible. The wooden pavement, which answers better here, owing to the absence of frost, than in New York, and a more frequent use of the watering cart, will cure this great nuisance of the city.

But the climate is the great charm of this city. It is the most exhilarating atmosphere in the world. In it man can do more work than any where else, and under it he feels under a constant pressure of excitement. With a sun as of Italy, and a coast-wind cool

as our November gales, and an air as crisp and dry as that of the high Alps, people work on, without let or relaxation, till they snap the vital cords suddenly. Few Americans here die gradually or of old age: they fall off without warning.

The cool air of the Pacific blows into the heated land, through what may be called the keyhole of the State—the Golden Gate—and then diffuses itself like a fan through the country, so that in whatever direction you travel from San Francisco, you travel with the wind, and, unfortunately, with clouds of dust too. Experienced travelers often attempt to avoid this great plague of California by going to many points by sea, and returning by land to the city, thus facing the wind. I have felt this "keyhole breeze" regularly every morning at eleven or thereabouts, even in the midst of the Sierras, a hundred miles away, in valleys facing the west.

In San Francisco it is this wind which especially modifies the climate. There is seldom a day too hot or too cold for out-door labor. Thick clothes are worn all the year long, and yet many people never have a fire in their grates. However warmly the day begins, before eleven comes the cool Pacific wind, and every one is glad of a thick coat. The winter is like the English summer, showery but delightful. Now and then, however, a rainy year comes, which makes a disagreeable season in winter. We may judge what a climate it is for fruits, for, on the first of January, green peas come in as strawberries go out.

The summer is considered the severest season, and

a melting hot day (if it accidentally come) is welcomed. The objection to this city climate is the clouds of dust raised from the sand hills. The temptation, too, to overwork is excessive. There are none of those necessary resting spells which the "heated terms" on the eastern coast require of our hard-working citizens, and fewer of the useful vacations which nature enforces in the diseases of our climate. As I have remarked, men die suddenly in this city; and, as physicians assert, there is nowhere so much insanity in proportion to the population. But this is merely a matter of acclimation and habit of living. When society becomes more settled, people will learn to adapt themselves to the new conditions. The California Indians are said to have been remarkably long-lived.

The more I examine the Californian capital, the more I am struck with its aspect as a city where Democracy has succeeded. Universal suffrage has had here its legitimate effect; it has given the government of affairs to the intelligent and moral classes, and those with most material interests. This may have arisen from the influence of large numbers of educated and energetic young Americans who early emigrated here, or it may be an effect of that tremendous outburst of moral power which overrode all the bounds of law and order, and put the elements of rascality and devilishness under foot for a generation to come—the revolution under the Vigilance Committee, thirteen years since. However it be explained, it is certain that the city is much better governed than any

of our eastern cities. The police is good, the citizen is safe in the lowest streets; fires are less frequent and destructive than with us, though the houses are of the most combustible nature; there is little open and repulsive vice; gambling is held in with a tight rein; the streets are dirty, it is true, but cleaner than those of New York; the schools (of which I shall speak more hereafter) and the school system are the best; the Sunday is better observed than in New York. It is evident that the intelligent and moral element has the control, and keeps it vigorously. And all these results, be it remembered, have been obtained, not from the State, as with us, but by universal suffrage in the city. Of course there is jobbery here, as elsewhere, and the low and immoral elements get a voice sometimes; but, on the whole, the city seems well governed.

There are other evidences, too, of high civilization: the churches are well attended, especially by men; there are excellent libraries and reading-rooms, with large memberships; social clubs, with handsome rooms and all the appliances of comfort; institutions of charity and benefaction for the orphan and the homeless and young criminal. One finds, beside, many houses where refinement and true taste prevail, and where much hospitality is shown.

The great social evil of the city seems to be, however, the hotel life. Large numbers of people, who ought to be keeping house, live, whether from laziness or supposed economy, alone, or with their families, in hotels or boarding-houses. From this kind of life

come the scandals which so much disgrace the city, and the bad gossip which is so prevalent here. Here are brought out the fast and loud young girls we meet so much while traveling in California; and here the young men, many of them foreigners, learn the free-and-easy manners with ladies which so destroys, on both sides, all the charm and grace of intercourse. This is not the fruit, it should be remembered, of the refinement of San Francisco, but mainly of this hotbed life in public places.

CHAPTER IV.

THE FUTURE OF SAN FRANCISCO.

NATURE seems to have given a prémonition that the Californian capital was to be the great city of this coast, for no one is comfortable traveling from it to the inland, heat and dust increasing, owing to the prevailing winds; and, as you approach it, you approach healthy breezes, cool air, and a pleasant climate.

Few will ever permanently live in the interior of California that can help it.* The villages, like the present mining-towns, will be "camps," where people make a campaign for fortune, but from which they return to the capital to enjoy the prizes of victory. All the fortunes accumulated now in the central plains, or the mines of the Foot Hills and the Sierras, either leave the country or are poured into the great city of the coast. The complaint is that no one stays in the country beyond the Coast Range. There can

* The following is from the *Evening Bulletin*: "The *Union*, noticing the value of lands in Santa Clara County, as classified in the *Bulletin* some days ago, calls attention to the cheaper lands yet open to settlement along the Foot Hills of the Sierra. We have heretofore pointed out the advantages of these lands for settlement. There is a desire which amounts almost to a mania in the mining towns to settle near the coast, or, as it is called, 'around the Bay.' People living in the mountains, away from farms, and oppressed a part of the year by excessive heat, imagine often that all extremes are modified, so that the happy mean can be found any where along the coast. But they forget the winds and fogs which push the wheat crops and vineyards well back to the hills; and that accessible lands in proximity to the sea already bear a relatively high price."

never be, outside of the valleys of this Range, a great class in California of rich farmers, or squires, or country gentlemen, or even (permanently) prosperous and comfortable villages. The inevitable law of climate will force every one who can, to reside near the coast, and the immense attractions of San Francisco and the neighborhood will draw all wealth and culture toward it. The interior is dry, hot, and dusty, with a parched landscape, where, except on the mountains, shade-trees grow with great difficulty. To build attractive homes in such a region, is a work of immense toil. In the winter the roads are almost impassable, and all social communication is excessively impeded. No doubt, whatever the inventive brain and unbounded energy of our countrymen can accomplish to overcome the obstacles of Nature, will be done in the interior, even as equal obstacles have been overcome on the coast. The bare and sunny hills will be covered with vineyards, the treeless plains will be irrigated, orchards and the trees of Australia will take the place of our shade-trees, railroads will be built, and there will be many a pretty village on the slopes of the Sierras; still, wealth will never remain there; fortunes will always be spent on the coast. Even the valleys of the Coast Range itself, as one approaches the eastern border (for it must be remembered that this so-called "Range" is really a wide tract of mountain, hill, valley, and intervale), are exceedingly uncomfortable in summer, and very difficult of access in winter. There is something almost pathetic in the immense efforts made in some of these

valleys to contrive places of amusement or summer resort for the San Franciscans. The "Springs" are generally little wooden houses, scattered about in a flat, treeless valley, under the focus of a reverberating furnace of hills, where the heat reaches 100 degrees in the shade, and whose only ornaments, after great expense, are a few young and straggling ornamental shrubs. They are said all to be non-paying enterprises in competition with the capital and the coast.

Within seventy miles from San Francisco there is a fertile valley where, I am assured, the wheat will have to be fed to hogs, so difficult is it of access.

Besides the concentration of farmers and the people who desire to spend their money, climate assures to San Francisco the superiority in manufactures over the interior. Here laborers can do more work than any where else in California. There will be fewer days lost from heat or cold. Energy is greater here. The labor of each man is more efficient. Capital can accomplish more and derive greater profits in this city than in the same branches elsewhere. The population will be the most industrious working population in the world. Moreover, education must center here. No parent who desires to send his child away for education, would think of sending him to Stockton, or the towns in the mountains, even if they possessed the most distinguished institutions, for the climate is too trying away from the coast. A pretty suburb of San Francisco, Oakland, across the Bay, is already drawing to itself all the best educational institutions and

most intelligent society of the State. Here, under a climate even milder than that of the capital, and yet cool and invigorating, children from the whole Pacific coast are being educated, and this is undoubtedly to be the intellectual center of the whole region west of the Sierras. Climate compels it.

Every one knows that Nature, so far as commercial relations are concerned, has evidently intended this city to be the outlet and *entrepôt* of the Pacific coast. Every link of communication and commerce must end here. There is no port on the coast, from Victoria to Panama, which can for a moment compare with San Francisco in natural advantages. She has an immediate back-country which so far surpasses that of New York in the production of fruit and grain, as Illinois surpasses Connecticut. She is linked, by steamboat and railroad, to the richest wheat-lands and orchards and gardens ever granted by a bountiful Nature to the hand of man. The whole mining interest of this State and Nevada empties its golden and silver streams into this port. She must feed and clothe and purchase for the whole mining population of the Sierras, and for the interior. All the trade with the northern coast and Oregon, in ice, fish, timber, and grain, centers here, and equally the commerce in tropical fruit, wheat, hides, quicksilver, bullion, and manufactures with Mexico and South America. Here will be the terminus and outlet of the great Pacific Railroad, the expectations from which are no doubt greatly exaggerated, but which must pour in cheap labor here, and supply the central part of the continent with teas,

clothing, and provisions from the Pacific coast. Here, too, is to be the opening of the new and as yet utterly unknown trade with the Oriental countries and the British colonies. The imagination which sees in the coming centuries new and vigorous Anglo-Saxon Republics on the islands of the Southern Ocean, and beholds an awakening and a new growth of the Oriental societies in Japan and China, and pictures the great bonds of commerce in steamer and railway which will connect Europe and the hundred millions of the American Republic with the industry, invention, and natural products of the vast East, and their teeming populations, and then remembers that the only outlet and link of this immense commerce and travel must be through this Golden Gate of the California capital—may well be pardoned for the most extravagant expectations of the future of this City. The inhabitants evidently have fully entered into this dream of the future. The prices of city-lots are a good evidence. It is plainly a city of expectations. A stranger entering it, and hearing the conversation of the citizens, would at once imagine this was the capital of millions of population. He soon learns with surprise that the whole population of California is only about half that of New York city and suburbs, some 500,000, and that of this, San Francisco has about the quarter—125,000. But the citizens are right. Such is the wonderful quality of nature here, and the selected energy of the Americans, that the five hundred thousand are equal to millions elsewhere.

CHAPTER V.

BUILDING ASSOCIATIONS—THE MINT—SOCIAL LIFE.

It is remarkable that San Francisco should have already excelled New York in one of those contrivances of civilization which enable the laboring man to have a home. Every one knows that with us the great misfortune of the laboring and mechanical classes is that they are forced to live crowded in tenement or boarding houses, and that their families have not the pleasures and advantages of a separate house. The inventive brain of the ingenious population on this coast has early seen and guarded against this risk. Land is as high, relatively to the wealth, in and around this city, as about New York. Interest is much higher, and it is proportionately much more difficult for poor men to borrow. But every mechanic and small shop-keeper and laborer is anxious to possess his own house, and he is enabled to attain it in the following manner:

He has saved, we will suppose, five hundred dollars, with which he has purchased a small lot in the city or its suburbs. With the purchase deed in hand, he goes to the associations called the "Building, Loan, and Savings Societies," and attempts to get a loan on his lot, for the purpose of building. The Society first satisfy themselves of the soundness of the title, and the value of the ground, and then loan, say

three-quarters of the sum, on a mortgage upon the property. This they can safely do, on account of the increasing value of real estate here, and the improvements purposed. The mechanic then makes his first contract with the carpenters and begins his building. With this contract to present to the Society, he now secures another loan, we will say of five hundred dollars, giving them a lien on the house, which shall take precedence even of "the mechanic's lien," and this loan is to be payable in monthly installments. In this way he may build a house worth one thousand or one thousand five hundred dollars, repaying also a portion of the loan, monthly, from his savings, and giving the Association the security of the building, and the enhanced value of the ground. As interest, he only pays monthly, at the rate of ten or twelve per cent. per annum. Frequently, a person from another class, a professional or business man of moderate means, not having sufficient ready money at once to build a home, or not wishing to disturb profitable investments, secures a loan on similar terms from these Savings and Building Associations, and is enabled to have a comfortable house. The result of this happy contrivance is that this city and its suburbs are full of what to an economist's eye ought to be the happiest sight—poor men's homes. So good is the security that but little has ever been lost by these associations, and their annual dividends are from ten to fifteen per cent.

One, the Hibernia Savings and Loan Society, received, in 1867, $6,247,045 in deposits, and loaned

$5,939,773, earning on this $312,086, and having on hand a reserve fund of $146,493, and cash, $518,426. The Savings Union received, in 1867, $1,312,313 in deposits, and loaned $1,259,258, earning $84,206, and having on hand $109,644. The Building, Loan, and Savings Society have a capital stock and deposit of $850,000, and have declared a dividend of one and a half per cent. a month. Their loans are not stated. Of these associations, the Hibernia declares ten per cent., the Savings Union ten on ordinary and fifteen on "term deposits," and others, which I have not mentioned, reach as high as sixteen per cent. The great proportion of their loans is made for building-purposes. It will show the prosperity of the laboring classes in this city, to mention that four savings societies present now an aggregate amount of deposits of $12,896,239, and eight of $17,165,597. The principal part of these deposits was from servants and laborers. The aggregate deposits in the State average $640 to each positor, and in the city, $720. In New York State, the average is $270 to each depositor; in Massachusetts, $214; in Rhode Island, $340; in Connecticut, $239.60; and in Boston $191. But in California the deposits are gold.

In other words, with flour at present rates, the average deposits in New York are equal to seventeen barrels of flour for each person, and in San Francisco, to one hundred and six barrels—or six times as much. Probably, in no city of the world, are the laboring classes in such prosperity. Almost every mechanic has his nice little house and flower-garden; and as

you go about among the people, you hear of this lady's cook having a thousand dollars in bank, or this one's chambermaid owning a city lot, or another's hired man already possessing a farm worth a thousand or two. Unlike the higher classes, they do not throw their wages into gambling mining speculations, but are said to invest in land, or to deposit in savings banks; and with interest at from ten to fifteen per cent., these deposits accumulate fast.

San Francisco must be a kind of paradise for female servants. A "girl of all work" gets $30 a month in gold, with her expenses scarcely greater than in New York; chambermaids receive from $20 to $25, and good female cooks even as high as $45. Male servants do not receive so high in proportion.

A cook for laboring men will receive $40, ranch cook, $50 per month; coachmen, $40; a farm hand of all work, $60; and even a Chinaman gets often $1.50 a day and food. Good teamsters get from $60 to $70 a month; blacksmiths, $75; carpenters from $3 to $4 a day, and board, in the country; rough carpenters from $50 to $60 a month; and a boy on a stock-ranch will receive $25. It will be imagined that under such wages, with flour at $6 to $7 (gold) a barrel, and beef at twelve to twenty cents, the savings of the laboring classes accumulate rapidly, and the laborer is often the capitalist at the same time.

Perhaps in the opposite condition of things in New York will lie the difficulty of inaugurating building-associations, for our mechanics, with all their high

wages, are not saving much, and it may be that they could not pay the installments on these building loans. But in a large city like New York, there are certainly enough persons with moderate savings, who would gladly borrow to build on such terms, but who now are not enabled to have their own houses, and are forced to the discomforts of tenement houses, or of boarding-houses, and to see their children growing up under evil associations. Who will imitate the Californians in remedying this evil?

THE LABOR EXCHANGE.

One of the remarkable instances of the intelligence and humanity of this new community was the establishment, in 1868, of the "Labor Exchange."

Before that year, San Francisco had always had more work than workers, but, owing to the cheap fare of the steamers, thousands of laborers were then suddenly poured into the city, and the question was "what to do with them?"

The Exchange was immediately organized by the citizens, and the unemployed labor at once transferred to the rural districts. Here is a statement of its workings for the first twenty-three days:

"On April 27, the California Labor and Employment Exchange opened its doors for business, and by Friday evening, May 22, fourteen hundred and seventy-five persons had been furnished with employment without fee or charge. Men who have been hanging about the city for weeks, looking vainly for jobs, and never happening to apply at the right place at the right moment, have been brought into communication with employers who needed their services. Farm laborers, plowmen, milkers, and teamsters, who were anxious for work, but who were afraid to set out on tedious tramps over the

length and breadth of the State in search of engagements, have been dispatched direct to the places where their services are required. The Exchange has placed over fifteen hundred men in employment, but yet it has not been able to fill every demand. The orders of employers wanting workmen have been larger than the supply of work-people. The Exchange could have found situations for twenty-five hundred men of the particular qualifications wanted, had they presented themselves.

"The greatest number of orders have been for general laborers; of these, demands for nine hundred and two had been registered up to Friday evening. The wages offered have ranged from $1.50 to $2 per day, and from $25 to $50 per month when boarded. The wages, both with and without board, are computed in gold coin. For farm laborers, demands for one hundred and twenty-three have been registered at wages from $1.50 to $2 per day without board, and $30 to $45 per month with board. For teamsters, sixty-eight orders were registered, at wages, without board, of $2 per day, and $25 to $35 per month with board. For lumbermen, thirty-six demands were registered, and the wages offered per month are $25 to $50, and even higher for skilled Canadians. For tracklayers, railroad hands, thirty demands were registered at $2 per day. For wood-choppers, thirty-three demands, at $1.50 to $2 per day, or $40 per month and found. For house painters, twenty-six, at $3 to $4. For carriage painters, five demands, at $3 per day. For milkers, twenty-eight demands, at $30 to $40 per month and found. For stone masons, fifteen demands, and the wages offered are $3 to $5 per day. For sash and blind makers, ten demands, at $2 to $4.50 per day, according to skill. For quartz miners, ten demands, wages offered, $40 per month and board. For wagon makers, nine demands, with offers of $3.50 to $4 per day without board, and $60 per month with board. The above are the demands in a few trades, selected almost at random, from the books of the Exchange. Hardly a trade, except such manufactures as have not yet been established on the coast, is unrepresented in the Secretary's list of demands. It is a significant hint, however, that among all the twenty-five hundred demands, only one employer sent an order for a clerk. Let the young gentlemen in this city who are wasting their lives in the vain hope of something "turning up," and those abroad who think of immigrating to California, notice this. In the twenty-three first days the office has been open, there were twenty-four hundred and ninety nine applications for men who could perform some one of the several varieties of manual labor, and only

one for a clerk. The men who persist in their search for easy clerkships, after that intelligence, must indeed have hopeful temperaments: they must have the spirit that will hope on when all ground for hope is dead."—*Evening Bulletin.*

THE SAN FRANCISCO MINT.

One of the best examples of organization and honesty on this coast is the United States Mint of this city, under one of those gentlemen who at once inspire confidence, even in an acquaintance—R. B. SWAIN, Esq. It would hardly be interesting to my readers to give a technical description of this most important establishment. At first sight, it seems a center of recklessness and waste: piles of gold and silver bars lie on trucks or scattered about in heaps; bags of gold dust are emptied out, while crucibles of the precious metal are melted and ladled out, as if it were melting lead; ingots are pressed, or chipped, or thrown around as if they were of clay, and bushels of yellow double-eagles and eagles, or bright half-dollars, are poured out and measured. "Surely some chips or fragments must disappear, or particles will go up the chimney, or workmen will carry off occasional pieces," is always said. And when to this is added the fact that this gold and silver comes from twelve thousand different depositors, and that it requires sixty thousand *separate* assays, we may judge what honesty and organization are required in the management of such an establishment. So necessary is loss or wastage, that the Government allows *one-fifth of one per cent.* on the amount of bullion manipulated. This legal wastage in gold would be in one year, $59,810.52, for this mint: un-

der Mr. SWAIN'S management, it was, in fact, but $2,126.30 in 1866. And in silver, there was not only no loss, but a *gain* of $3,114.64 (owing to the silver contained in gold), though the legal loss was $3,290.80.

"The exhibit of the coiner is fully as remarkable. The amount of gold bullion, delivered to Mr. Schmolz, coiner, during the year 1866, was $29,948,725.21. The amount returned by him during the same period was $29,947,221.83; showing his actual wastage to be $1,503.38; the legal limit being $44,923.08. The amount of silver bullion delivered to him during the year was $956,549.05; the amount returned by him was $956,500.67. Actual wastage, $48.38; legal limit, $1,913.10. In other words, the gold wastage of the melter and refiner was 3.56-100 per cent. of the limit allowed by law; the gold wastage of the coiner being 3.34-100 per cent.; and the coiner's silver wastage, 2.53-100 per cent. of the legal limit.

1866.		*Legal Limit.*
Coiner's actual loss (gold)	$1,503 38	$44,923 68
Coiner's actual loss (silver)	48 38	1,913 10
M. & R. actual loss (gold)	2,126 30	59,810 52
	$3,678 06	$106,646 70
M. & R. actual gain (silver)	$3,114 64	3,290 80
Total actual loss	$563 42	$109,937 50

"The manipulation of $30,000,000, with a loss of a little over $500, is unprecedented in the history of the United States Mint and its branches. The wastage of the preceding three years, under the present arrangement, has been almost equally remarkable."

It may be imagined that such a result is not gained

without great care and labor. All the walls, pits, troughs, flues, chimneys, and floors, are carefully cleaned and scraped, "chemical detectives" are called in to detect a missing particle of gold, the grating under the feet catches many portions, and even the clothes of the workmen are never taken from the building, but are burned at the end of the year, and the gold particles in them are returned to the crucible. So close is the accountability of one department to another, that a five dollar piece was missed recently, and traced from one room to another, and finally came down to one very honest and respectable employé. He could give no account of the loss, but offered to resign if the Superintendent entertained any suspicion. The whole matter, however, was cleared up by a lucky thought of the watchman to look into the office coat of the suspected employé, where the missing piece was found caught in some portion of the garment.

I was glad to see that one important branch was entirely carried on by women—that is, the weighing of the coins. This very nice work is said to be better done by women, from their more delicate touch. They are only occupied some five hours a day, and receive high wages—I think $75 a month.

It is interesting to hear of the confidence of the miners, in this "institution." Packages of bullion will lie for years unclaimed, and deposits often come without any demand for voucher, or receipt, and sometimes without the depositor's name.

The Mint was established in 1854, and, since that

time, has coined over $240,000,000, or half the amount coined by the Philadelphia Mint since 1793. It had accommodations for coining $5,000,000 per annum. The coinage has usually quadrupled this estimate of the Government; in 1865, under Superintendent SWAIN, reaching $22,000,000. In one quarter of that year, $7,000,000 were coined, $2,000,000 more than the estimated annual coinage. The deposits that year amounted to $22,000,000, of which California contributed $12,000,000 (gold), Idaho, $3,000,000 (silver), Oregon, $1,000,000 (silver). These figures are about the average proportion.

THE FOLLOWING TABLE, TAKEN FROM ONE OF THE REPORTS RECENTLY FURNISHED THE SECRETARY OF THE TREASURY, GIVES A SUMMARY OF THE OPERATIONS OF THIS INSTITUTION DURING THE PREVIOUS TEN YEARS.

Years.	Date of Settlement.	Gold Wastage.	Silver Wastage.	Silver Excess.	Total Coinage Charges or Total Revenue	Total Coinage.	Expenses in U. S. Currency.	Value of Currency compared with Gold.	Expenses in Gold.	Per centage of Expenses to Revenue Derived.
1857	November 12.	19 621/1000 ozs.	45 40/100 ozs.	.....	$186,037 04	$12,540,000 00	.....	.....	$353,014 79	189 8/10 per c.
1858	October 16.	16 651/1000 ozs.	.....	2846 45/100 ozs.	213,429 35	19,423,598 26	.....	.....	326,279 39	152 9/10 per c.
1859	December 31.	7 992/1000 ozs.	.....	1199 13/100 ozs.	166,277 19	14,234,241 55	.....	.....	286,908 96	172 5/10 per c.
1860	December 31.	172 33/1000 ozs.	.....	402 1/100 ozs.	113,824 03	12,461,911 52	.....	.....	287,512 31	251 7/10 per c.
1861	December 31.	191 170/1000 ozs.	200 48/1000 ozs.	.....	180,929 26	12,690,485 61	.....	.....	249,947 49	138 2/10 per c.
1862	December 31	234 936/1000 ozs.	.....	424 22/100 ozs	210,323 62	16,187,987 65	.....	.....	273,252 14	129 9/10 per c.
1863	December 31.	229 761/1000 ozs.	.....	2011 19/100 ozs	217,198 74	18,551,598 68	$299,619 95	88 per c.	263,665 56	121 4/10 per c.
1864	December 31	173 881/1000 ozs.	.....	1823 64/100 ozs	190,938 13	19,536,809 02	399,560 18	69 7/10 per c.	278,493 44	145 8/10 per c.
1865	December 31	173 838/1000 ozs.	.....	4171 77/100 ozs	257,777 29	19,144,875 58	462,482 92	54 9/10 per c.	253,903 12	98 5/10 per c.
1866	December 31.	114 289/1000 ozs.	.....	2676 65/100 ozs	215,377 84	18,940,592 64	375,440 87	72 3/10 per c.	271,443 74	126 9/10 per c.
1867	December 31.	7 282/1000 ozs	.....	2046 89/100 ozs	165,673 90	19,370,534 92	327,758 76	73 6/10 per c.	241,230 45	145 2/10 per c.

EIGHT-HOUR LAW.

Though the condition of the California laboring classes is so remarkable in point of comfort and prosperity, the great movement of Labor against Capital in the Eastern States—the effort to gain a larger share of the profits of capital by means of an "Eight-Hour Law"—has reached the Pacific slope. I witnessed a most imposing, well-dressed, and orderly procession of mechanics and laborers, who were combining to get ten hours' wages for eight hours' work. The men looked precisely like our mechanics at home, perhaps a shade more sun-burnt, but strong, active, and intelligent. There is something always impressive in any great movement of the laboring class; and this or similar combinations are sweeping round the civilized world. They are perfectly legitimate on the part of the laborers, and, like trades unions and strikes, they are combinations against capital, and the only method that the laborer has of securing a larger portion of the profits of his employment. But, on the other hand, capital has an equally good right to oppose them, and secure all it can from the production which could not be carried on without it. The *bosh* which many of our papers utter about this struggle, and the passage of eight-hour laws by our Legislatures, seem to me in the highest degree absurd.

Here, in California, however, the movement is peculiarly unjustifiable, and in its results, likely to be very injurious to the public interest. Labor has now an enormous share of the profits of production, as is

shown by its condition, in the facts mentioned above. Capital is becoming more abundant and enjoys less profits, as is proved by the low rate of interest, compared with that of former years. Large numbers of the laborers are now capitalists. This effort to raise the rate of wages twenty-five per cent. will either force capital to emigrate to more profitable fields, or will compel it to introduce cheap labor, which will benefit the State, but not the Eight-Hour party. In the mean time, a great deal of production will be interrupted, and the development of the State retarded. From all we can hear, the eight hour movement will soon fall to the ground. Great corporations, like the Pacific Mail Company, are already closing some of their works till they can introduce cheaper labor, and all employers have the great resource of Chinese emigration to turn to, for cheap and sufficiently industrious working men.

One good custom in San Francisco, is selling almost all products of the soil by weight instead of measure. This ought to be the practice everywhere in the United States, and would be much fairer to the consumers.

A singular result of the want of competition on small dealers here, is that the vine-growers are glad to sell the Mission grape at a cent and a half a pound on the vineyards, and do not dispose of nearly all their product, while the retailers never take less than five cents, and often get ten cents, and yet a great deal rots on their hands. The want of small change works badly, too, against the consumer. Thus, if I

want to buy a newspaper whose price is ten cents and pay a quarter, I get back ten, losing twenty-five per cent. on the transaction; so with all retail purchases. The dealers themselves, however, buy in quantities, and do not lose. It is like our uncertain standard of value in the Eastern States: the loss is always on the consumer. Smaller change than a "bit" (a dime) is seldom seen. What a contrast to South Germany, where one receives change to one-tenth of a cent!

THE MANUFACTURES OF SAN FRANCISCO.

The manufactures of this city are already a most important branch of its business, and are estimated to reach the value of $25,000,000 annually. They are, however, in the hands of comparatively few capitalists. Thus the Rolling Mills, the Golden City Chemical and Assay Works, and the Powder Mills belong to not more than thirty stockholders. The three Woolen Mills have not more than a dozen stockholders, though with a capital of $3,000,000, and producing about $2,000,000 worth of goods annually. Eight millions of the manufacturing stocks of the city are said to be owned by not more than fifty persons. Nothing in woolen manufacture in the world, surpasses the blankets made here in the Mission Woolen Mills. They would make our housekeepers' eyes water to see them. The ordinary white house-blanket, for fifteen dollars (gold), are far beyond anything in our market, and the magnificent twenty-five dollar white blankets (used mainly as gifts) are immensely superior to any European goods. This is

owing partly to the quality of the wool, and partly to the fact that there is no temptation to use cotton in the manufacture. I went over the grand factory; Chinese were managing almost every loom, their wages generally being about one dollar per diem. The best camping and army blankets are made here.

Remarkably good ladies' cloaks and woolens for business suits are also manufactured in this city. Of these three woolen mills, the Pioneer employs 350 hands, and run 72 looms and 6,000 spindles. They manufactured in 1866, 30,000 pairs blankets, 60,000 yards broadcloth and cassimeres, and 375,000 yards flannels. The Mission Mills, of whose blankets I have spoken, employ 425 hands, and have 50 looms, and 5,000 spindles. In 1866, they manufactured 80,000 pairs blankets, 125,000 yards broadcloth and cassimeres, and 500,000 yards flannel and cloakings. The third mill is at Marysville.

Among the other manufactures of the city and neighborhood, are *Mayer's* cotton wadding and batting—production about 2,000 pounds per day; and cotton goods from the Oakland Cotton Manufacturing Company—annual product, about 100,000 yards shirting and 50,000 yards sheeting. In *cordage*, the Pacific Manufactory turns out about 2,000,000 pounds, assorted work. The various *assaying* establishments are important, assaying in 1867, $31,608,509 worth of gold and silver.

There are also *Chemical Factories, Oil Works, Petroleum Refineries, and Glass Works.*

The *Iron Foundries, Boiler Shops, and Rolling Mills*

are very successful manufacturing enterprises. The value of iron manufactures for 1867, was $1,041,189. In the Pacific Iron Works, I was fortunate in making the acquaintance of one of the leading managers, Mr. IRA P. RANKIN—a gentleman of such intelligence and character as to give one a high impression of the business men of California, whom he so often represents in public matters.

Great quantities of mining machinery are being made in this and other factories for the whole Pacific slope and Mexico:—one quartz mill has been sent even to North Carolina.

There are also lead works, saw mills, flour mills, rice mills, sugar refineries, leather, shoe, clothing, and furniture factories. Breweries are found in almost every town of the State; and, owing to the quality of the hops, the beer of the Pacific States is far superior to our miserable mixture in the Eastern States.

Gold and silver manufacture is, of course, a highly important branch of business and the work frequently shows a great deal of taste. The principal establishments are those of TUCKER, SHREVE, and ROBERT SHERWOOD.

There are many other successful branches of manufacture which it is not necessary to describe here.

SOCIAL LIFE.

Society in San Francisco has the defects of society in New York, much aggravated, with but few of the corresponding good qualities of the Atlantic city.

There is no unity to it; it is broken up into innu-

merable cliques and sets, and there are very few houses which can gather in them the best men, representing each his department, or profession, or craft. The general tone estimates each man by money, and I think there is a profound but concealed contempt for any one living mainly for ideas or principles, the results of whose work are not shown by pecuniary rewards.

There is a certain clique of the suddenly-rich, mining speculators, successful stock-gamblers, and others, who indulge in the most unbounded extravagance of living—giving parties costing many thousands of dollars, and displaying all that is possible in equipage and jewelry. Connected with these, are various women of a more or less doubtful position, whose previous history is uncertain, and whose present means of living and display are unknown.

This set, however, is an exception. The most of the people are just such plain, intelligent, active persons as one sees in New England towns—living, however, with less hospitality, and in poorer houses. Here and there are families of much cultivation and refinement, and with neat, English-like, comfortable homes. The expense of servants, cramps of course all house-keeping; but the few each family has, are far smarter and cleverer than ours in the Eastern cities; they are evidently the best of their class.

As might be expected, they feel their position greatly, and give their mistresses no end of trouble. If the troubles of mistresses with servants are a measure of the prosperity of the working classes, in Cali-

fornia the laborers must be in an El Dorado. With one family I know, the chambermaid left because the lady spoke disrespectfully of her "beau"; the cook gave warning because the waitress reflected on her personal appearance; and if, at any time, it should happen that the overflowing tables of the Californians have delicacies which the domestics do not share, they are liable to take summary leave. As a general thing, each family of moderate means has one smart girl, at thirty dollars per month wages, who does all the work.

The curse of Californian society is its evil-speaking. It is rare to hear any one well spoken of. There seems to be hardly a name so honored as not to have a shade of scandal on it. One reason may be the fact that every individual is thoroughly known, and peccadillos and sins which, in our crowded communities are forgotten or never brought to light, are there open and remembered. The distance, too, from the great world cultivates the habit of small interests and petty gossip. Then, no doubt, many men and some women, when they first came here, felt themselves somewhat beyond the restraints of morality and civilization, and gave way to actions of which they would be ashamed now. No American community ever had so many energetic and educated men in proportion to its numbers, and none so many adventurers.

The fault in the foundation of society has reached the top, and will affect all future structures built upon it. California began its growth with mining speculation; the fever of those first years of tremendous

excitement will never altogether leave the blood of her people.

Venture—on a grand scale, it is true—and speculation, and throwing for great chances, will always characterize them. Plodding, patient industry will never stand in as high esteem on the Pacific coast, as with us. The same peculiarities reach every department of life. People have a passion for achieving great results at once, and are too often indifferent as to the means. A friend of mine, a clergyman of much *esprit*, speaking of a well known agent of the Pacific Mail Company, whose stiff integrity had annoyed some of the citizens, said to me, with a characteristic epigram "It makes those Californians wince and howl to strike against *even a chip of the Rock of Ages!*"

The "pessimists" here always say, "The worst about the Californians is that you cannot depend on them!" A distinguished savant said to me, "The thing that has annoyed me most, is that every one lies so!" (meaning more especially the mining people). I think, however, this is all exaggerated. Old experienced business men, of the highest integrity, assert that they have nowhere known business, in the older States, conducted on such honorable principles. I, myself, have happened to know a number of instances of Californians refusing to take advantage of legal opportunities where much profit could have been made, from those with whom they were dealing.

And take such a fact as this, stated by Mr. COLE, Senator from California, in the United States Senate:

"In support of what I have said in behalf of the officers on the Pacific side, I will call attention to a statement which I have received from the Treasury Department, in reference to the whisky tax. The amount of tax upon whisky collected in the ten districts included within the cities of New York and Brooklyn—that is, the first nine districts of New York and the Thirty-second District of New York—reached, last year, the sum of $1,867,032. The amount collected in the San Francisco district, the first district in California, during the same period, was $1,803,458. *Nearly as much was collected in that one district as was collected in all the ten districts in New York, included in the cities of New York and Brooklyn.*"

It must be remembered that there was never a place of such temptation as California. The prizes for "sharp-practice" are enormous, and public opinion is not strict. Take land-titles alone. The whole subject is in great confusion. A squatter's claim may sometimes be as good as a Mexican title; a school warrant placed suddenly on lands supposed to be private property, but which, owing to defect of title, may turn out to be public, will bring in great returns. Thus, the casting a shade over any title, from whatever cause, has become a kind of black-mail on the unfortunate owners, and offers both to lawyers and speculators, most lucrative returns. It is not considered a respectable means of making money, and yet is not illegal, and is therefore a temptation. The enormous fluctuations in mining stocks are another fruitful source of semi-dishonest practices.

A board of directors can instruct its Superintendent to extract non-paying ores; they can cause damaging reports to be spread, then lay assessments to bring a stock down to the lowest point, thus "freezing out" the unhappy stockholders, and causing them to sell at great loss; and then buy in, and by a reverse process bring up the stock to a most exaggerated value, till they can sell out at an immense profit. All these sharp dodges, of course, are practiced in New York, but not so openly, and *against* the current of public opinion. In California, the foremost bankers are publicly said to engage in them. As so much property is invested in mines whose value can be so suddenly changed, the temptation to sharp practice is greatly intensified. It is equally so with the courts. A decision on a mining claim will involve millions of dollars; a delay about the decision, an opinion from a Judge expressed in private, will carry the stock up or down, and enable one or other party, or even the Judge himself, to make large sums, though, at last, his verdict may be given solely on law and evidence. Innumerable chances are thus constantly afforded designing and shrewd men to make sudden fortunes by doubtful means—more, probably, than in any other community in the world. Numbers of persons resist the temptations, and present examples of integrity unsurpassed in the older States, but many have yielded to them.

The great virtues of Californian society are its intelligence, energy, and, above all, its *generosity*. There never was such a wide-awake community, open to all

improvements, applying mind incessantly to the development of the country, ready to adopt, and ingenious to apply all possible inventions and discoveries for the advancement of the material resources of the State. The most interesting thing about California, to an American, is to observe what results the scheming Yankee brain can bring about in the finest climate which the Anglo-Saxon race has ever enjoyed, and with a soil which is unequalled in the world for variety and wealth of products—the "NEW WEST," settled by a new race.

No fear of expense or trouble ever deters the Californian from any enterprise.

The progress of the State in all departments of labor and education and material and mental developments, during the last ten years, has been unsurpassed anywhere in the world. The citizens are very proud of their State, and few men leave here to return to our coast for a residence, who do not regret it. The individual is of far more importance in California than in older communities; and the incessant whirl of life becomes a great attraction to those who are in it. The women, however, do not generally like the State, and sigh for our more quiet and cultivated life.

Though such tremendous efforts are put forth to make money here, no where is it less valued. The Californian is the most generous of men. He scatters money with a lavish hand. No American will ever forget the bountiful contributions from this coast to our Sanitary Commission during the war. And yet

it is a peculiarly impulsive generosity. One of the drollest scenes ever exhibited in a civilized community was enacted in San Francisco while I was there. Two politicians made a bet on the late election, and the loser was to march down the main business street playing a hand-organ. Before he appeared at the set time, the happy thought occurred to some philanthropic citizens to raise money there and then for the treasuries of the Roman Catholic and Protestant Orphan Asylums, which were very low. Accordingly, notice was given, and some well-known citizens followed the unlucky organist, in a carriage, with canvas bags. The street was packed from one end to the other, the houses black with a laughing, excited crowd; women and children were trampled under foot in the eagerness to see the procession. With the first few yards, a shower of silver coin began from bystanders and windows and house tops; miners emptied their pouches, merchants their purses, and draymen their pockets; half-dollars poured upon the organ-grinder; and, in a short time, one big bag after another was filled, until some *ten thousand dollars* were raised for the orphans, besides provisions enough for the whole year.

The generosity and intelligence of the community have enabled them to procure the most able ministry, and to support the best conducted press, which any city with equal population can boast of in the country. The churches are largely attended by men, and a dull, inferior preacher finds his pews thinly seated. One of the ablest men on the coast is the Rev. Mr. STEB-

BINS, the Unitarian pastor, who occupies a pulpit once filled by a man who has become a kind of saint in the Pacific States—THOMAS STARR KING.

Dr. STONE is a very eloquent and influential preacher for the Congregationalists, and Dr. EELLS and Dr. WADSWORTH, among the Presbyterians, have a deep and true influence for good. The general tone of society is far less sectarian and narrow than on our coast.

Not enough has yet been done of a practical kind, by the Christian bodies here, for the lowest and criminal class, or for the intelligent and adventurous mining communities.

The House of Refuge ("Industrial School") of the city is well conducted, but on the somewhat old congregated system, and there is not much effort directed to the prevention of crime among children.

There is much kind charity exercised in private toward the self-respecting and decent poor, whose sufferings in California are beyond belief, because here men are ashamed to beg. Mr. SWAIN has given the most touching instances of labors among this unfortunate class. Clergymen, in general, occupy in this State a very influential and honored position, and have fairly remunerative salaries.

In the press, the *Evening Bulletin* is, to my mind, one of the most valuable and interesting journals in the States; the *Alta California* and *Sacramento Union* stand very high through the country, and are very lucrative properties. They all discuss questions with much intelligence and fairness, and are filled with

most valuable information in regard to this coast. The *Overland Mail*, a monthly, is quite equal in ability to our monthlies, and, to my taste, much more interesting.

CHAPTER VI.

THE PUBLIC SCHOOLS OF SAN FRANCISCO—A COSMOPOLITAN SCHOOL.

AMONG those laying the moral foundations of California, should never be forgotten the public-spirited citizens who have made the school-system what it is. Under our Government, beyond all others, the school is the ground-work of order and liberty. I think, if the time and obstacles be considered, no city in the Union has accomplished more for popular education than San Francisco. A regular series of free schools has been established for all classes, from the primary to schools of a high grade — even to the "Cosmopolitan" and Latin schools. The buildings are often large and commodious, with all the modern improvements in school furniture and the like. I doubt myself the wisdom of these large caravanseries of school-children, but, such as they are, they are fully equal to ours in New York; and, spacious as the rooms are, they are not sufficient, so that hundreds of children, in some wards, are continually turned away. Yet some 20,000 children are being educated annually,

at the public expense, in this city, and the school levies reach nearly $350,000.

My first visit among the schools was to a large Primary, in Tehama street, containing over a thousand children. It was interesting to find that the improvement which we have sought so much to bring before the public in New York, and which has been introduced into the Industrial Schools of the Children's Aid Society with much good effect—the "Object System"—has already been adopted here. The teaching, too, showed the effect of a good Training School; for teaching is as much an art as any high mechanical branch, and the long experience of years of patient labor in managing young minds, can be laid down in almost mathematically exact rules and principles. All the suggestive methods of the object system, the efforts and invention to awaken the faculties and call forth the observing powers, are now regularly taught in good training schools; and though a good teacher knows all these instinctively, a poor one learns them mechanically, and becomes a far better teacher.

It is disgraceful to be obliged to confess it, but in this matter, this young city of the Pacific is already far in advance of New York. A "Normal School" for teachers has been in active operation here for some time, while ours only dates from 1867. The California School, I can bear witness, has a large number of young teachers in faithful attendance, who are thoroughly taught. It is supported by the State. Many of the pupils teach a part of the year in the country, and then attend this school during the other

part, and teach the classes of children who come to it as to any public school. Each teacher is not merely drilled theoretically in teaching, but practically in a class-room, with children attending from the neighboring ward. I visited also the "Lincoln School," which is a spacious and handsome building for the purpose, with a most awkward and ghastly statue * of our revered President in front. Almost every school, by the way, has a picture of LINCOLN and STARR KING on its walls. This is a higher grade of school, with over a thousand pupils. The instruction which I heard, in arithmetic, was thorough, and requiring original work from the boys. The teachers were evidently men of education. The Girls' High School, in Bush street, evidently employs as good teachers as are found in our best private or public schools.

The scholars were nicely dressed young girls from twelve to eighteen years, under perfect discipline. They recited in geometry and physical geography in the most creditable manner, drawing their own figures in the former, and using different lettering from the text-book in the latter. The School Committee have apparently not yet heard of GUYOT'S text-books and maps, which are an immense advance on anything yet compiled for schools. There is no question that geography should begin with physical divisions before political, and that the first instructions in "place" should be in regard to the immediate surroundings of the child, and then be extended to those of his county, and State, and country.

* Fortunately shaken down since by an earthquake.

This is the method adopted in the schools of San Francisco. They have also adopted the modern theory that every child can be taught something of music and drawing, if the work be begun young enough. Many of the teachers evidently possessed a correct and free hand in drawing, and the children learnt it readily.

The fault of these otherwise excellent schools seems to be the same as with ours — a too high pressure of studies, too much cramming during a short period. This defect is mainly due to the parents, who insist on their daughters learning everything during a very few years; keeping them for a short time under a far greater pressure than are the boys. People must be content to extend the time of their children's education, and see them learn thoroughly but more slowly; at the same time preserving their physical freshness and vigor. But the greatest advance in the San Francisco school system is in the

COSMOPOLITAN SCHOOL.

This city, as is well known, is made up of various nationalities. It was early seen that it was of the greatest possible advantage to both Americans and foreign-born, to learn each other's language. As the Committee on this subject reported to the Board of Education: "They felt in their full force the profound words of GOETHE, 'He who knows but his own language, does not even know that.'" Accordingly, Primary Schools were opened, in which French and English, and in others, French and German, were taught; and these, by regular gradation, culminated

in the excellent school so happily named above — the "Cosmopolitan School." Here, all the regular school branches, such as reading, grammar, geography, history, and arithmetic, are taught in French, German, and English. Most of the school exercises are conducted in a foreign tongue. It is well known that, at a certain tender age a boy or girl catches a foreign language with wonderful readiness, such as they never show when more mature: this is especially the case if conversation and oral instruction be in that tongue. The result of this enlightened system in this school was evident. The sons of many Americans—some of the wealthiest families in the city—were sent here to learn French or German, and at the same time to acquire ordinary school instruction. These lads recited or answered with a readiness and purity of accent not often witnessed; while the French and German boys and girls preserved their own tongue in grammatical purity (a great advantage among a population which so soon depraves its language), and learned English in addition. The different grammars were not at all confused by the children, in fact, were better learned by the contrast, as English grammar is always best learned by our children, not in abstract definitions, but by the analysis of a foreign language, especially if it employ case-endings.

The theory and practical result of this Cosmopolitan School seemed most happy and successful. We ought to have in New York a dozen such public schools, for our own and the foreign-descended chil-

dren. It is found here that Americans appreciate this school better than any nationality, the proportion among over one thousand children being fifty per cent. American, thirty per cent. German, twenty per cent. French.

The general school system of California has this advantage over ours in New York, in that it is more centralized, and the teaching profession really determine who shall be teachers. The same books are used through all the schools of the State, and the same rules apply, under the general direction of the State Superintendent of Public Instruction. There is thus a unity of school management throughout, and the latest improvements can be introduced everywhere.

No teacher can be anywhere appointed without a State certificate, and the Examining Boards are always constituted so as to have a majority of teachers on them. Thus, if a city ward desire to remove a teacher from political motives, they can do so; but they cannot substitute another without an examination by the Board, so that, in effect, the appointment of teachers is taken out of the hands of politicians, and rests with properly chosen persons. The result of this system is a remarkably able and well-qualified class of teachers in the State. They are well paid, too—female teachers in the city receiving from six hundred to twelve hundred dollars (gold) per annum, board being about thirty dollars per month; and male teachers getting from twelve hundred to two thousand five hundred dollars. A country female teacher will

frequently receive seventy-five dollars a month, and her board will only cost her, say twenty dollars. There is a great demand in California for good female teachers, and at this time a dozen, with good certificates, could be at once employed at salaries of from fifty to seventy-five dollars a month. In the Spring or Autumn any competent female teacher might come here with the confident expectation of being speedily engaged at a good salary in the country districts.

CHAPTER VII.

THE BIG TREES—PREPARATIONS FOR THE YOSEMITE.*

THE great pleasure trip of the American continent will hereafter be the journey to the Yosemite. There is no one object of nature in the world—except Niagara—to equal it in attraction. Whenever the Pacific Road brings the two coasts within a fortnight of each other, innumerable parties will be made up to visit it I have been tolerably familiar, by foot-journeys, with Switzerland, Tyrol, and Norway, and I can truly say that no one scene in those grand regions can compare equally, in all its combinations, with the wonderful Cañon of the Yosemite. It is a matter of congratulation, also, to me, that I saw it before any road, or coach, or rail-car had approached it. It ought not to be visited otherwise than as our party journeyed to it—on horses, winding in picturesque train over velvety trails, beneath the gigantic pines of the Sierras.

But first, as to the making up of a party. It is of the utmost importance that a company should be selected who will travel slowly, and stop to enjoy; and not "do" this glorious region, as so many are in the habit. A large party is not desirable — six or eight are quite enough; and it must be remembered that it is much like an Adirondac camping party; you are

* Pronounced Yosemity.

thrown necessarily on one another, and are in very intimate contact for two or three weeks. The best time to start is a week before full moon, in June. At that season there are plenty of people in San Francisco who are ready to make the excursion, and a party is easily got together. The water is then at its highest in the falls of the valley, the snow is melted, and the dust and heat of the central plain are not then at their worst, while the night journeys are made magnificent by the moon. For clothing, the great necessities in California are always flannel beneath, and linen outside. The best dress for gentlemen, is a good hunting-shirt of flannel, with a loose morning coat (to be worn occasionally), stout pantaloons for riding, and heavy walking shoes. For ladies, a full linen suit for the coach-drive, and a short linsey dress for horseback. Whatever is worn must come out pretty effectually ruined by dust and mud. No wraps or shawls are needed, or umbrellas (except for the sun), and no heavy luggage should be taken. Knapsacks or small leather bags are the best traveling baggage. A valise or trunk can be expressed to meet one as he comes out, either at Coulterville or Mariposa.

The whole expense for, say a fortnight from San Francisco, ought not to be over one hundred dollars, and may be much less. The charges for horses are two dollars and fifty cents (gold) per diem, guides two dollars and fifty cents, mule two dollars and fifty cents, and inns in the Valley three dollars and fifty cents; on the whole a very expensive trip. The common-sense way would be (if one had time) to buy a moun-

tain-mustang at one of the towns in the Foot Hills for thirty dollars, make the trip without a guide (who is no more needed than on a turnpike,) and then sell the horse at the other end. In this way the whole trip could be made for fifty dollars. It is not a severe journey; any lady not an invalid can make it, and no other in the world can give more enjoyment.

Our party started on the steamer in the afternoon for Stockton, and next morning, after a comfortable breakfast, were booked, by a large, easy, Concord coach, for Bear Valley, some 90 miles—fare $10. The drive was over an apparently barren, parched plain, almost without a tree for fifty miles—the Valley of the San Joaquin. The first portion passed some good wheat-fields, but the most of it was through a dreary region. The characteristic features are the wind-mills at each farm-house for raising water and irrigating. It is not, however, so barren a country as it looks. Like much of the unpromising-looking land in the State, it only needs irrigation to bring forth treasures of grain and fruit. We were troubled but little by the dust, as it was so early in the season; but they say that later, the drive is almost intolerable.

One of our party says he has known such dust there in August that the driver could not see his leaders; and he has heard a passenger cry out in agony, "Driver, stop, for God's sake! or we shall be suffocated!" and the coach has stopped to give all a chance to breathe.

There was nothing of any special interest in the towns we passed through: the close of the drive was

through a superb mountain region by moonlight, and it was late when, thoroughly tired out, we reached Bear Valley. The next day we drove on through Mariposa to an inn, on the edge of the forest, very comfortable and neat—"WHITE & HATCH'S"—where we were to take horse, and our excursion would fairly begin. Horses can be obtained at Mariposa or Bear Valley. They are generally mustangs of pied color, small and wiry, but the surest-footed creatures possible—even surpassing the Norwegian posting-ponies Not one in our party slipped or stumbled once, though sometimes treading over water-worn, rocky floors, or descending as nearly perpendicular mountain-sides as a horse could, with a rider on his back.

Here, after a nice dinner, there was great buckling and arranging of saddles, and shortening of stirrups, and packing of knapsacks on a most wicked-looking mule, which was our baggage animal.

It may be remarked here that our excellent guide, of whom we expected so much help for the ladies, was, after the starting, mostly invisible, being occupied far in the rear in attending to the vagaries of this eccentric and unaccountable animal, who usually insisted on going down hill when he ought to go up, and who had a most malicious propensity for rushing, with his load, between trees too narrow for him, or for making sudden and perverse darts from the trail into the depths of some neighboring swamp. I can believe the accounts of my friend K., who says he has known a mule perfectly good and docile for six months, so as to get an opportunity for one spite-

ful kick at his too trusting master, and that after that he would be as meek and stupid as before.

Among all my many traveling experiences in various countries, I do not think I can ever forget the romance and the delicious beauty of that first night's ride toward the Yosemite. The trail was barely wide enough for two to ride abreast, winding under majestic pines, over mountains, and down wide, deep dells, each step of the horses springing elastic from soft pine leaves. The sun soon set, and a magnificent moon arose, giving us at one time a broad belt of light over the path, and then leaving us to descend into a mysterious gulf of darkness, and then casting strange shadows and half-lights through the pine branches over our procession of riders. As we penetrated farther into the forest we began to wind about beneath trees, such as few of us had ever seen,—the superb sugar-pine, perhaps the most perfect tree in nature,—here starting with a diameter of from seven to twelve feet, and mounting up with most symmetrical branches to the height—say of Trinity Church spire (250 to 260 feet); on the end of its branches, cones hanging a foot long. Sometimes we came forth from the forest for a few moments, and had grand glimpses of great mountain valleys, only partly revealed in the glorious moonlight. Most of the party were old travelers, and were rather impervious to sensations, but we all agreed that this was a new one, and gave a most promising augury of the Yosemite excursion. After fourteen miles—an easy ride—we

all reached Clark's Ranch at a late hour, ready for supper and bed.

CLARK'S RANCH AND THE BIG TREES.

This ranch is a long, rambling, low house, built under enormous sugar-pines, where travelers find excellent quarters and rest in their journey to the Valley. CLARK himself is evidently a character; one of those men one frequently meets in California—the modern anchorite—a hater of civilization and a lover of the forest—handsome, thoughtful, interesting, and slovenly. In his cabin were some of the choicest modern books and scientific surveys; the walls were lined with beautiful photographs of the Yosemite; he knew more than any of his guests of the fauna, flora, and geology of the State; he conversed well on any subject, and was at once philosopher, *savant*, chambermaid, cook, and landlord.

By a wise selection he has been appointed by the State Commission, which has charge of the Yosemite, Forest-master, to take care of the wonderful trees, which are only at six miles distance. On that Commission are Messrs. F. L. OLMSTED, Prof. J. D. WHITNEY, R. W. RAYMOND, and others well known on this coast. It has been a wise provision among the California people, which has thus early set aside the magnificent Canon for public enjoyment for ever, and has placed these wonders of the forest beyond the reach of the showmen and spoilers who so soon destroy such monuments in America.

Mr. CLARK seems the very person to be their guardian. He evidently has a filial reverence for these relics of the past — these giants of ancient days. When I saw his vigorous action in one matter, I wished we had a Forest-master on the Hudson River.

During the whole journey to the Sierras, we had been tormented in every beautiful scene by most impertinent and obtrusive signs of a certain "clothing" establishment in San Francisco. Just as we stopped our horses to take one dreamy gaze through a far-away perspective, there would rise up a placard in the foreground, "One Hundred Miles to Stockton! One Hundred and Fifty to SOWAM, MENDAM & Co!" Did we dismount to recline and drink at a cooling spring, we were hardly at our ease on the soft pine twigs, when the solitude is desecrated by "Sowam's Prize Pantaloons!" on a neighboring tree; if we wander out on a lonely walk for converse with nature and our own thoughts, "Sowam and Mendam's Drawers" haunt us at every turning. Every exquisite mountain scene is made hideous by advertisements, until at last our whole party swore that they would go naked their whole lives, rather than buy of "SOWAM, MENDAM & Co."

This hobgoblin was before us among the Big Trees, and in the Yosemite. If anywhere in the world, Sowam will be there. We knew it. He would make life unendurable there. But Mr. CLARK, hearing of our fears, reassured us. He said that this thing had been attempted by some shop-keepers, and he had stopped it summarily; and now the Commission had secured

an act which made it a penal offence to affix any business notices in the Yosemite Valley, or among the Big Trees. Verily, California is in the van of civilization.

We started at not too early an hour for a forest ride to the Trees, Mr. CLARK kindly guiding us. What may be called the avenue to these hoary monuments of antiquity, lies through a gigantic forest of sugar-pines, themselves some two hundred to two hundred and fifty feet high, so that when you reach the mighty towers of vegetation you lose a little the sense of their vast height. I searched curiously as we rode through the forest for the conditions which should produce such monsters of growth. It must be remembered that the *Sequoia gigantea* is not found merely here, or at Calaveras, and its neighborhood. There appears to be a belt of them running along the slopes of the Sierras, about four thousand or five thousand feet above the sea level, and as far south as Visalia. They are so plentiful near that place as to be sawed for lumber, though what so light a wood could be used for, I can hardly think. In the neighborhood of the latter place, the Indians report a tree, far in the forest, surpassing in grandeur anything ever seen; but thus far, no white man has ever cast eyes on it. It is a mistake, too, to suppose the race wearing out. I saw both here and in Calaveras young giant *Sequoiae*, beginning patiently their thousand years of growth with all the vigor of their grand ancestors; some of but four hundred years, mere youths, were growing splendidly. There are fewer young trees here

than in Calaveras, because fire or some other cause has swept among the under-brush of all trees, and must have destroyed many of these burly saplings.

The *Sequoia* grows on mountain slopes, where the slow wash of water, through ages, brings down minute particles of fertilizing rocks, and the decayed vegetation of countless centuries, with the moisture of eternal springs, water and feed its roots. It enjoys a sun of the tropics without a cloud for six months, and has the balmy air of the Pacific, with incessant and gentle moisture, and a warm covering of snow for its Winter. Beneath its roots, the ground never freezes.* As has been well said, "It has nothing to do but to grow;" and so with all the favorable conditions that nature can offer—air and sun and moisture—it pumps up its food from the everlasting hills, and builds up its slow, vegetable-like substance during century after century into a gigantic, symmetrical and venerable pile, while nations begin and pass away beneath its shadow.

Think of lying under a tree, beneath which the cotemporary of ATILLA or CONSTANTINE might have rested, and which shall defy the storm, perhaps, when the present political divisions of the world are utterly passed away, and the names of WASHINGTON and LINCOLN are among the heroes of a vague past.

But how to give an impression of its size! If my readers will imagine a *Sequoia* placed beside Trinity Church, he must conceive it filling up one of our largest dwelling-houses—say a diameter of thirty feet, with a circumference of ninety feet; the bark of this

* At least this is true of the Calaveras grove.

gigantic trunk will be light, porous, and reddish in color, with many scars upon it of fire (its great enemy); then, perhaps, at the height of the Trinity belfry (say one hundred feet), two opposing huge branches will protrude, it may be, themselves, of the size of large trees (say eight feet in diameter); these will be twisted and much broken; above them will come forth other heavy branches, which show the marks and blows of the storms of a thousand years or more, for the giant, so far above his fellows, meets a continual battering from the gales of the mountains.

There is no symmetry in his top, or delicacy and grace in his outline; he has battled and struggled with the storm for too many centuries to preserve an artistic appearance. He looks the giant of the forest, broad-rooted and strong-limbed, rough and weather-beaten, but defying snow and frost and hurricane for thousands of years, and still sheltering bird and beast and cattle beneath his grand shadow.

His leaf is much like the leaf of our cedar, and the cone is a small, insignificant burr, hardly two inches long. As we follow up the top, we shall find the gradually-diminishing stem and broken branches reaching toward the blue vault nearly a hundred feet higher than the Trinity spire.*

As I have said, fire is the great enemy of the *Sequoia*. The dry summers leave the vegetation exposed to conflagration, and there is no doubt that the Indians, at an early period, through carelessness

* The "Key Stone" tree in Calaveras is three hundred and twenty-five feet high.

or design, burnt off whole districts, which have never recovered their former shrubbery. The *Sequoia*, from its dry, light bark, catches like tinder. It is rare to see a tree untouched by fire. It may be that it has thus been especially diminished since man first appeared on the Pacific coast. It seems seldom to die of old age; and one eminent botanist, of a most careful habit of mind, tells me that he has seen one, which, in his judgment, is over three thousand years old. The one in Calaveras, whose rings I counted, was apparently about one thousand eight hundred years old, but I am assured an exact count gives only about one thousand three hundred and seventy. As Mr. CLARK philosophically says, "why should it not be in the nature of one tree to live three thousand years as much as of another to live thirty?" The chance, however, of destructive elements assailing the life of any one being increases with time, and the "struggle for existence" must be greater.

We visited one big tree in Calaveras which had been blown over two years before. The enormous weight which each tree carries makes it more difficult to bear the gales, as it overtops the forest. Perhaps any ordinary wood, such as oak or maple, would increase the specific gravity, so that at three hundred feet high, the leverage on the roots would be too great to bear any strain of a gale; but this wood is almost like cork—lighter than any wood on the Eastern coast. The fall of this mighty tower, they say, was heard for miles around, and made the earth tremble. Where it fell it has buried its top deep in the ground, so

that there is quite a ravine made by the blow in the earth. You strike the trunk where it is still a large tree, and then walk upon it some two hundred feet toward the roots. When you reach the roots you are upon a height equal to the roof of a moderate sized house, and a fall from the trunk would be dangerous. You descend by a ladder.

If I recollect rightly, there were three hundred and sixty-five trees in this Mariposa Grove. I measured one trunk, broken off at the top, where it was a foot in diameter, which was about two hundred and ninety feet in length, and estimating thirty feet as the length of the part broken off, it must have been some three hundred and twenty feet high. We lunched near a "camp" of the Geological Survey, in the heart of the grove, lying on our backs beneath the gigantic canopies, and feeling like pigmies at the feet of these giants. The younger trees were often wreathed with a strange, yellow, hanging moss. Our ladies were deeply interested in a remarkable flower which grew beneath the snow, a few patches of which still remained here in June. It was a blood-red flower of a fleshy-like substance, like the Pyrola, or "Dutchman's pipe," growing somewhat like a garden hyacinth. Its stems were clustered, from six to ten inches high, with long erect scales, broader below and gradually narrower, and finally becoming bracts. The flowers were numerous, and occupied the upper half of the stem. It is the *Sarcodes sanguinea.*

We gathered some, but its wonderful red color could not be preserved, as it turns black. Great efforts were

made, too, to carry off some of the grand cones of the sugar-pines.

The *Sequoiä* belongs to the same family with the Red Wood (*Sequoia sempervirens*), of which superb trees are seen all along the coast below San Francisco—some over two hundred feet high, and perfect in symmetry. This wood is red like a cedar, and harder than that of the big trees; when polished, it has a handsome grain, and is a remarkably enduring wood for fences or posts. I have seen good fencing of it eighteen years old.

The *Sequoia gigantea* is found as a fossil tree in Greenland: it will probably grow in any part of the northern and western States.

The Mariposa Grove seems to me hardly equal to the Calaveras, as the latter, though containing fewer trees, has finer specimens, taller and better preserved. Then, in the latter, a little house, used as a ball-room, built on the sawed-off stem of one tree, gives one a most impressive idea of their size. Here, however, we all rode some distance through the hollow trunk of a fallen tree! North of the Calaveras grove is still another of several hundred trees which I did not visit. The Calaveras grove is made ridiculous by a name being put on each tree, in a little sign. The "Old Maid" tree has her age most nearly ascertained, say 1370, and her diameter was thirty-five feet, before the bark was removed. It took three men twenty-five days to cut it down, by boring the trunk with augers.

The "Mother of the Forest" was stripped of her

bark for some hundred and sixteen feet by means of scaffolding; portions of it were sent afterward to the great London Exhibition; the circumference was 78 feet, and the height 327. The "Key Stone" is the highest—325 feet.

I have spoken before of the wonderful vegetation of these mountains, and the Foot-Hills. How often have we stopped to gaze at the red, flesh-like arms and limbs of the *Manzanita*—(this remarkable shrub has a wood, when polished, more brilliant than mahogany)—or we have rested admiringly under the immense Pitch-pine (*P. ponderosa*), reaching above us some two hundred and fifty feet, with a diameter of ten or twelve feet, its bark a bright cinnamon in color, and in large plates, some three feet long and twenty inches wide. Of the Sugar-pine (*P. Lambertiana*) I have already spoken. Besides these, in these mountains, are the Spruce (*Abies Douglasii*) and many varieties of oak, among them the Live Oak (*Q. Crassipocula*) and the Yew (*Taxus brevifolia*). The chaparral, with which we made such disagreeable acquaintance, is generally a thorny, impervious shrubbery, made up of the Chinquapin (*Castanopsis Chrystophylla*), and the Chamiso (*Adenostema fasiculata*).

CHAPTER VIII.

THE YOSEMITE CAÑON.

The distance from Clark's Ranch—the last stopping place on the Mariposa route to the Yosemite—is about twenty-five miles, right through the Sierras. This is the dreaded day of the excursion for the ladies, and such gentlemen as are not used to horseback. So there is careful arrangement of saddles and stirrups, blankets are strapped *over* the saddles for some of the ladies (a device for comfort which should never be neglected), and the advance is made in the fresh morning, with not quite the spirit of the first day. But soon the romance of the scene and the mode of journey, enliven all. We form a considerable train of various costumes, and wind through the silent forests and over the elastic pine needles and cony trails, and up the heavy slopes of mountains, in a most picturesque procession. The wicked pack-mule at first leads, as we are assured this is the only way to mollify her, but she soon makes a perverse plunge into a chaparral thicket, and we leave her to have a brisk, stirring canter in this most delicious atmosphere, on a fortunately level forest-glade—the guide afterwards bringing her up.

No horses I have ever seen can compare, in ease of gait, with these California mustangs. They are trained early to a long, easy canter, and on a good road, they will "lope" along sixty miles a day, with a motion like rocking in a cradle. They feed on oat-straw, or mountain pasture, and bear the hardest usage with little damage. The Spanish saddle is used, with high peaks before and behind, which is a great rest for a long ride. It is not kept on with buckle and strap like ours, but tied with horse-hair bands which fasten through two opposing rings, and thus can be strained to exactly the right degree. The stirrups are covered with huge leathers which fall five or six inches below the feet, and the legs are protected by broad leathern shields.

When night comes, on these trips, you have only to tether your horse in a mountain pasture, or turn him adrift to feed with the other horses. He gets little other care.

Every Californian rides from his earliest years. You will see the smallest youngsters "loping" along with out-stretched arms and loose bridle, on the wildest-looking native horses. A pedestrian is a rare sight in the country. Horses are cheap, and the roads are only suited for riding. I have been constantly reminded, in this habit, of Hungarian peculiarities. May this healthy custom tell as favorably on Californian as it does on Hungarian *physique*.

Our party, I have not mentioned, were made up of a Southern family—most charming specimens of the best-bred Southern people, and a married couple from

Philadelphia, who went into this thing as one of the duties of life. The Southerner, Colonel N., who had been familiar with horses all his life, had been favored with a steed, which, we were privately assured, had been the terror of the country around. "He'll kill him, sure," said a guide of another party to me, confidentially. "He's kicked one hostler to death, and nobody can't go near him in the stable. He bites like mad, too. The last party he was out in, he nearly killed one gen'leman! It's an imposition to send him!"

I asked how they tried to break him? "Why, sir, they first chained him up and *flogged him with a cart-whip*, but it wasn't of no use, he jist bucked whenever you got on him, and bit like anything." When Colonel N. heard this, he said, "D—n them! I see they have just spoiled a good horse with their infernal treatment. He's just the horse I like." So after that we watched the Colonel and his horse with profound admiration, inwardly congratulating ourselves that we hadn't been served with him. But the Colonel was right; under the hand of an intelligent master he was a splendid animal. The Colonel approached him as he would, in conversation, a sensitive friend, knowing all his weak points, and respecting his good qualities. He, in return, soon came to know a genuine horseman, and never bit, or kicked, or "bucked" on the journey; on the contrary, once when he was mired he seemed to know here was some real occasion for his mettle, and behaved beautifully. Once the Colonel was thrown on a rocky ledge, within a few feet of a thousand-foot precipice, but he never reproached or struck the animal;

he admitted he himself was wrong — he was trying, owing to the nature of the ground, to dismount on the wrong side. My wife, who was a bold rider, had a perfect palfrey, ambling like a cradle, but never suffering Miss N., daughter of the Colonel, a very pretty young lady, who wore a white mask and looked like a ghost on horseback, to pass him. I had a dull, hard-trotting pied nag, and could do little with him.

We found, on our journey that day, heavy masses of snow, though it was the middle of June. They gave us, however, but little trouble. Once, as we were galloping over a green little intervale among the snow-peaks, we were startled by a sudden rush of wild-looking Indian riders over our pathway. They were all armed, and were hunting deer.

"Diggers!" said the guide, and with ineffable contempt. "Poor devils — live on grasshoppers— huntin' for Hutchins, I s'pose!"

We took our lunch on the greensward, near a cold stream flowing from the ice, with the mighty snow-covered peaks of the far Sierras rising before us into the clear, blue vault. Again to saddle, and after a few miles, though in the thick forest, we know we are approaching the mighty Cañon. Our guide stopped us to prepare us.

THE YOSEMITE CAÑON.

"Nowe there's no use talkin'!" (a favorite phrase of his.) "I've takin a great many gents and ladies to that 'ere pint we're a comin' to—Inspirashin' Pint, they

call it—and seed 'em jist pop right over! There was Mrs. Van Ardle, as strong a female as you ever see; when I show'd her that, she jist caved right in; and Mrs. Smith, the minit she peered over she gin oute. And I've seen gentlemen's hair stand right on eend!"

"But what causes them to faint?" said some one.

"I'm sure I don't know. But I dew know ye look right downe a sheer prespis, three-quarter of a mile deep, and across on t'other side, ye see a wall of rock a risin' amost a mile high; and downe below ye see a purty green valley with a river in the middle on it, a windin' along aboute eight mile above, and aboute twenty waterfalls, jist like silver, a jumpin' over into it as if they couldn't stop—some on 'em fifteen hundred foot high; and all along up mountings and prespisses, from a mile to half a mile high, as sheer as a wall, and sich purty colors on 'em, and all kinds of shadders. *That's what's the matter!* There's no use talkin'! But we must be off; there's that darn'd mule on the back trail agin!"

We rode on a little distance through the thick forest, then, on a word from the guide, fastened our horses to the trees, and made our way through the bush, with beating hearts, till we came out on the ledge of a precipice; a few steps more and we were on a shelving rock, hanging over the gorge, "Inspiration Point;" and, lying down, we were instructed to creep cautiously to the edge. There the whole mighty view opened upon us. There was "no use talkin'," indeed!

One could well understand women fainting before it, especially when exhausted by the long ride. The first sudden glimpse seemed almost to take one's breath away, or to make one giddy. No aspect of nature I have ever looked upon, no sight of the desolate ocean, heaving and lashing in mighty surges beneath wintry storm, or sudden view of Alpine snow-peaks through rifts of black thunder clouds, or glimpses of Norwegian coast-glaciers through the lulls of an Arctic gale, or even Niagara itself, was so full of the inspiration of awe as this first opening view of the Yosemite Cañon. All other scenes of grandeur and beauty must fade away in my memory when this vision is forgotten. Before the mighty powers which had shaped this tremendous gorge, and in presence of this scene of unspeakable and indescribable beauty and majesty, man and his works seemed to sink away to nothingness. I thought I knew the Yosemite well, through the remarkable photographs of WATKINS (the best specimens of this art ever exhibited), but the great peculiarity of this scene cannot be shown in them—its wonderful and exquisite color. I almost felt as if I had known nothing of the Cañon before, so surprising were the effects of coloring and shadow. It must be remembered we had struck the gorge on one of its lateral walls, say about four miles from its western end. There is no approach to it from below, up the stream. As we lay on the edge of the cliff, we gazed up a narrow green valley, perfectly flat, from half a mile to a mile wide, and winding, some six miles above, between enormous

cliffs and precipices, a small, bright sparkling stream in the middle, fringed with green grass or forest trees.

The wall, over the edge of which we were looking, was nearly three-quarters of a mile high, and far below, the oaks and willows and poplars and pines in the green intervale, looked like little shrubs. On the other side, a short distance beyond, was the grand bluff of El Capitan, a sheer precipice of nearly four thousand feet, its light granite purple, in the evening light, the most majestic cliff that human eye has looked upon; beyond were other bluffs and precipices, pearly gray and purplish white, with green fringes below, and dark archways or fantastic figures traced by shadows on their surface.

There were buttresses, as of gigantic Cathedrals, and archways such as might support hills of granite, and domes where a mountain was the substructure, and half domes, and peaks whose regular succession has given them the name of "Brothers"—all varying in color and shadow, incessantly, with the receding light; some with the delicious cool gray of the rock-color; some white, with a reddish shade; others faint purple; others resplendent in pink and brilliant purple; while over their edges, giving a joyous life to the scene, rushed sparkling silver streams, in innumerable waterfalls, dashing into the green valley below.

We had been gazing at this scene of wonder a few moments in awe-struck silence, when our Philadelphia party broke in with: "Well, I suppose that's all,

58841

we had better be going, now!" The Yosemite had been done, and we must be off!

But Mr. S. was indignantly, though silently frowned down, and he and Mrs. S. went forward for the slow descent, leaving us to our contemplations.

But the scene was changing.

Over the valley, the heavy shadow of El Capitan continually increased its gigantic breadth of shade; beyond him, the "Arches," which, to be seen at that distance, must be a thousand feet in height, grew each instant more strongly marked, but still further beyond to the east, the North Dome and the Half Dome were golden and purple in the evening light; and yet beyond, the still white peaks of the Sierras towered above in the pale blue.

On our side of the vast gorge, the foot of the various precipices and cliffs was covered with detritus, making, near the bottom, a considerable slope, on which grew many evergreen trees.

On the other side there was one line of massive rock, which fell apparently plumb, without a break or curve, for nearly four thousand feet, and at its base, so hard was the material, there seemed no recent detritus at all. One could evidently touch the very bottom of the immense fall of rock.

The first glance at this wonderful Cañon, with its rock-walls, and smooth, green, and wooded bottoms, showed that it was not a split in the heaped-up ranges of the Sierras. The opposite sides did not correspond. The Three Brothers have no kindred on the other wall of the gorge; the Cathedral no correspond-

ing giant Minster of granite; nor El Capitan, a rival on the opposite side. The grand Half Dome not only has no matching half on the opposing mountain, but its own gigantic half-sphere must have utterly disappeared beneath the *débris* of the valley.

Nor could water have worn this immense gorge, some ten miles in length, through the hardest porphyritic granite. Some of the grandest cañons in California have, indeed, been worn through slates and shales by the slow action of running water. But here there are few traces of the effect of water, and a thousand centuries of flowing water would hardly affect, in the smallest degree, such an enormous pile of molten and hardened stone as El Capitan.

The popular explanation of the formation of the Yosemite is that "its bottom has fallen out." That is (in the view of the Geological Survey), under the slow action of volcanic forces for many centuries and "year-thousands," the molten masses of the Sierras were gradually thrown up, there were cracks and shrinkages in the cooling, and here and there immense masses swallowed up in the molten rock below, thus leaving enormous fissures or cañons, whose sides could not correspond with one another.

Our guide finally became impatient of our long-continued contemplation of the scene, and hurried us on our journey again. The descent was begun a little distance on, in a series of zig-zags through the loose soil of the sides of the gorge, in paths so steep that it seemed impossible to sit the horses; some of us accordingly, led our animals, but those who rode got on

perfectly secure, as the sure-footed creatures never stumbled once.

At length, after a tedious scramble, we reached the hard ground under the forest trees along the stream. Most of the party were too tired to canter, but none were too wearied to be deeply impressed by the wonderful scene around them. As we ambled slowly along on the greensward, or beneath the groves, the evening shadows were falling over the valleys, but above, in the dying light, the gigantic peaks arose in immense height over us, crushing us almost in the sense of their majesty. Each few steps the view of the various cliffs and projecting bulwarks of the grand cañon changed, and there was a new exclamation of delight at some new effect of shadow, or some fresh and wonderful aspect of these imposing walls of rock. Now, as the gloaming passed, the full moon arose and lighted up the two enormous towers and colossal nave of the "Cathedral." Then, as we rode on, that merged into the rocky mountain side again, and the Three Brothers clasped their granite hands together; then the low thunder of distant waters came to our ears, and the silvery fantastic light beamed on the exquisite Bridal Veil (a waterfall of a thousand feet), and soon revealed half the shining surface of the majestic Guardian of the Valley (El Capitan, or Tutucanula), while on the south side arose the enormous obelisk of "Sentinel Rock;" and still further on, the broad belt of yellow light was reflected on the white stream of the glorious Yosemite Falls, falling near 1,500 feet over the mountain ridge.

Fatigue and stiffness were forgotten in the magnificent scene, until just opposite these last splendid falls; the horses cantered into the open ground in front of a long, low log house—Hutchings', our destination in the valley,—and those who were too stiff to get down were lifted from their horses, and a good supper and bed rested the weary party.

CHAPTER IX.

THE YOSEMITE — HUTCHINGS' HOTEL.

ONE of the jokes current in the Valley is to carefully warn the traveler, before coming to this hotel, "not to leave his bed-room door unlocked, as there are thieves about!" On retiring to his room for the night, he discovers to his amazement, that his door is a sheet, and his partition from the adjoining sleeping-chamber also a cotton cloth. The curtain-lectures and bed-room conversations conducted under these circumstances, it may be judged, are discreet. The house, however, is clean, and the table excellent; and Hutchings himself, enough of a character alone to make up for innumerable deficiencies. He is one of the original pioneers of the Valley, and at the same time is a man of considerable literary abilities, and a poet. He has written a very creditable guide-book on the Cañon. No one could have a finer appreciation of the points of beauty, and the most characteristic scenes of the Valley. He is a "Guide" in the highest sense, and loves the wonderful region which he shows yearly to strangers from every quarter of the world. But, unfortunately, he is also hotel-keeper, waiter, and cook — employments requiring a good deal of close, practical attention, as earthly life is arranged. Thus we come down, very hungry, to a delicious breakfast of fresh trout, venison, and great pans of garden strawberries; but, unfortunately, there are no knives and forks. A romantic young lady asks, in

an unlucky moment, about the best point of view for the Nevada Fall. "Madam, there is but one; you must get close to the Upper Fall, just above the mist of the lower, and there you will see a horizontal rainbow beneath your feet, and the most exquisite—"

Here a strong-minded lady, whose politeness is at an end, "But here Hutchings, we have no knives and forks!" "Oh, beg a thousand pardons, madam!" and he rushes off; but meeting his wife on the way, she gives him coffee for the English party, and he forgets us entirely, and we get up good-naturedly and search out the implements ourselves. Again, from an amiable lady, "*Please*, Mr. Hutchings, another cup of coffee!" "Certainly, madam!" When the English lady from Calcutta asks him about some wild flowers, he goes off in a botanical and poetical disquisition, and in his abstraction brings the other lady, with great eagerness, a glass of water. Sometimes sugar is handed you instead of salt for the trout, or cold water is poured into your coffee; but none of the ladies mind, for our landlord is as handsome as he is obliging, and really full of information.

"Mr. Hutchings, how do you like it here in the winter?"

"Madam, I always retire then to my country seat, on the sunny side of the Valley" (pointing to a little cabin on the other side, out of the eternal shadow of the rocks.) "I have it full of books, and I get a paper once in three months. At first, I used to think it quite romantic to watch the avalanches, but when a fresh one fell every half mile as I waded through the

snow, I began to get enough of them. We have snow here ten feet deep, and I've slept in it like any bear sometimes, as I was backing my things in."

"Well, you are not much troubled with neighbors."

"No; I have only Leidig (his next neighbor), and the Diggers; that's what I like about it."

It was a very agreeable thing to us travelers that Mr. Hutchings had been able to lay out an excellent garden in the Valley. He brought in strawberries of several varieties, and most delicious flavor, by the pail full, and says that he has them all summer. The trout are a far inferior fish to our Eastern trout, and much less prettily marked. We saw the Indians catch them in the icy-cold stream which flowed by the door. The venison, too, seems not equal to ours, but it cannot be in full season yet. Mr. Hutchings is always ready for a philosophical remark. My wife had gone out and gathered some splendid wild flowers, and arranged them about the room. "There, gentlemen," said he, "I have always said that the highest art was in producing beauty from the poorest materials."

There were several parties in the hotel. A San Francisco business party, who were doing the Valley, with the rapidity they sold ready-made clothes: then the English party from India—very pleasant people, and among them, an exceedingly pretty young lady, who was watched by us gentlemen with great admiration, as she was not only very pretty, but wore an exquisite long riding-dress, while our ladies were all in what must always be a hideous dress--bloomers or very

short skirts. "But what will she do at the water-falls, and in the swamps?" was the envious female whisper; but we, her admirers, were sure that an English woman would be practical; "She will come out with just the thing at the right moment!"

Alas! our ladies were right; she had to drop her beautiful plumes, and go in her petticoats, and finally borrow from her critics.

This party were just from the Himalayas, and said that these contained no pass so grand as this.

From this hotel there are excursions enough to occupy one for weeks, among the beautiful scenes of the Valley. Each morning the guide saddles the horses—which had been turned loose in the mountain pasture—and fastens them in front of the house; and after lunch has been packed, we set off in different directions, to see the famous points and objects. One of the most enjoyable features of the excursion is simply cantering up and down the valley, getting the new aspects which open freshly every half-mile, and are different each hour of the day. The wonderful thing about the Cañon, which will hereafter draw many an invalid here from distant lands, is its divine atmosphere. To me, just recovering from a tedious fever, it seemed the very elixir of life—cool, clear, stimulating, and filled with light and glory from the sun of the South, which here never seems in summer to have a cloud. The nights are cool, but midday would be too warm were it not for the delicious sea-breeze which, every day at eleven, blows in from the Golden Gate, a hundred and fifty miles away. The gorge

lies fortunately east and west, just about opposite to San Francisco, and about midway between the two flanks of the Sierras—here some seventy miles in width. Were it a north and south valley, even at its altitude (4,000 feet), it would be almost intolerable. Now nothing can surpass its mild, invigorating climate, and harmonious and resplendent atmosphere. Life seems to have a new spring and hope under it. The charm of the Wonderful Valley is its cheerfulness and joy. Even the awe-inspiring grandeur and majesty of its features do not overwhelm the sense of its exquisite beauty, its wonderful delicacy, and color, and life, and joy.

As I recall those rides in the fresh morning or the dreamy noon, that scene of unequaled grandeur and beauty is forever stamped on my memory, to remain when all other scenes of earth have passed from remembrance—the pearly gray and purple precipices, awful in mass, far above one, with deep shadows on their rugged surfaces, dark lines of gigantic archways or fantastic images drawn clearly upon them, the bright white water dashing over the distant gray tops seen against the dark blue of the unfathomable sky, the heavy shadows over the valley from the mighty peaks, the winding stream, and peaceful greensward with gay wild-flowers below, the snowy summits of the Sierras far away, the atmosphere of glory illuminating all, and the eternal voice of many waters wherever you walk or rest! This is the Yosemite in memory!

I have been thinking much of scenes in Norway, Tyrol, and Switzerland, with which to compare this. Switzerland, as a whole, is much superior in combinations and variety of features to the Sierra region. But there is no one scene in Switzerland, or the other parts of mountainous Europe, which can at all equal this Californian valley. The nearest approach to it is the Lauterbruennen Valley. It was my good fortune to see that most grand and beautiful Swiss picture, in traveling on foot, by an unfrequented path from the Rhone, over the Gemmi pass, by Kandersteg, and then straight over the mountains, coming out on the high ridges above Muerren; a somewhat analogous position to that from which you first strike the Yosemite. The Swiss scene has the advantage in the superb glaciers which flow into the upper end of the Valley, but it is inferior in grandeur, and even in life, to the Californian. The latter having immensely grander precipices, and, instead of one waterfall — the Staubbach — a dozen on a much greater scale.

The form, too, of the Cañon, is unique, nothing in Europe resembling it: the immense vertical walls rising so abruptly from the green vale! The peaks, too, which surround it, being original, even in the Sierras: the immense, inaccessible, concentric masses of granite—domes, or half domes, as if melted in some gigantic mould, and then, when cooled, left standing in the air.

One of the grandest and most beautiful objects in the Valley was directly opposite our hotel, and its

music never ceased, day or night—the Yosemite Fall. The stream which bears this name, heads about ten miles away, and then flows down, almost directly over the mighty precipice, into the Valley below—a depth of 2,550 feet. At this time, it is about thirty-five feet wide, by two or three deep. The fall has almost the appearance of one grand shoot of water, but it has, in reality, three divisions: the first is a descent of fifteen hundred feet on a ledge (as it seems), though it is, in fact, a shelf of rock, a third of a mile broad; then follow a series of cascades for six hundred and twenty-five feet, and a final leap of four hundred. There is water enough now to give a bright, foaming, grand sweep of the whole cataract. It is certainly one of the most beautiful objects the human eye can ever gaze upon! We never wearied of riding out over the green meadows and gay, wild flowers, to get some new aspect of it.

The only Fall to compare it with, that I have seen, is the Vöring Foss, in Norway. This is a fall of nine hundred and fifty feet, but the water is so scanty that it is all resolved into wreaths of mist before it reaches the bottom; and it makes but little impression on the mind, compared with the Yosemite Fall. It is, moreover, confined in a narrow, dark gorge, and must be seen usually from above. In seeing the California Fall, I did not even think of the Norwegian.

The amount of water, at this season, adds immensely to the cheerfulness and life of the Valley; but it also occasioned us a good deal of trouble in getting around. We were mired several times, and

twice, one of our ladies was thrown on the soft greensward.

But the scampering gallops through the groves, under these grand scenes, and the quiet amblings amid such beauty and sublimity, were pleasures which nothing marred. In our rides down the Cañon, we were struck by the grand mass of the Sentinel Dome, 4,150 feet above the Valley, and said to give the finest point of view in the whole region round; the valley itself, it must be remembered, being over 4,000 feet above the sea level. Then three-quarters of a mile beyond, is the majestic buttress of the Sentinel Rock, 3,000 feet high, of which a thousand feet is a smooth obelisk; opposite to this are the Three Brothers, the highest 3,830 feet, and each regularly lower than the next.

Then comes the Cathedral Rock, 2,660 feet, with two perfect spires, the most picturesque object in the Valley; then the exquisite Pohono, or Bridal Veil, a flashing fall of a thousand feet swaying like a silvery plume in the mountain breezes, and the grand feature of the Gorge, of which I have so often spoken, El Capitan, 3,600 feet.

To the east of the hotel, about two miles above the Falls, the Valley ends and divides into three Cañons, each containing scenery as remarkable as those of the main gorge. The north-west Cañon is the Tenaya Fork; here we have the Half Dome, a majestic inaccessible crest of concentric granite, 4,737 feet above the Valley, with a vertical face where the half sphere split off, of 2,000 feet in height; the North Dome, a rounded

mass, 3,568 feet, and easy to ascend from the north. In this fork is the exquisite Tisayac Lake, on which the morning reflections are so beautifully given.

The middle Cañon, that of the Merced River, is the most important one of the three. No ravine scenery in Europe equals this wild and extraordinary gorge. The river, which at this season has a tremendous body of water, descends through a wild ravine of two miles, 1,980 feet. The path winds along over a series of wild falls and rapids, till a cloud and gale of mist and wet cover it, through which we reach a dry place at the foot of a magnificent fall, 475 feet high—the Vernal. Then ladders are ascended up the face of the cliff, and we rest on the dry, sunny ledge over the boiling and whirling cataract. Still another scramble for a mile, and we find ourselves blinded, gasping in the breath of the furious cataract above. We are all clad in India-rubber coats (furnished by a guide), and drip with water, and work up, inch by inch, stooping, as against a violent current. The gale takes away our breaths, and we have every now and then to catch a breath; there is nothing visible ahead but clouds of mist and driving swirls of rain, with a roar filling the air, which prevents all voices from being heard. We are helping the ladies on with the utmost difficulty, but at last all reluctantly give out and turn back; but I cannot bear to give up the view, and after groping in the furious storm and mist, I at length find a side-path through the chaparral, and soon reach a dry ledge beneath the superb Nevada Fall—a majestic sweep of thundering water, 639 feet in height, more

grand than any water-fall in the Valley, because of the volume of water. There is a peculiar twist in the upper portion of it, which adds to its picturesque effect. On the other side, rises a most remarkable peak of granite, solitary and inaccessible—Mount Broderick, some 2,000 feet. The scene as I stood there alone beneath this sublime sweep of waters, and amid those mighty mountain-cliffs, can never be forgotten.

The South Fork I did not visit, but the photographs show that it possesses scenery as romantic as the other branches of the Cañon. It is interesting to notice that these enormous water-falls in the Merced Cañon have made scarcely an indentation on this most hard rock—a fact probably indicating that they have not existed a great length of time. The comparative absence of detritus in the upper part of the main Valley, would seem to show the action of water and ice, pressing the débris into the lower portion where more of it is found. There are, too, (as was discovered by Mr. King), something which may be called lateral moraines, and perhaps a terminal moraine in the middle of the Cañon, so that it seems not improbable, though there is no absolute evidence, that in a comparatively recent period, glaciers existed in the upper part, and a lake in the body of the Yosemite Cañon; the descent of the whole Valley, it must be remembered, being only 50 feet during some eight miles.

It is not my purpose to give a guide-book account of this unique valley, therefore, I have said nothing of great numbers of excursions which can be made from it, to points of such scenic interest, as nowhere

else exist in America. In future years, when travelers frequent the Sierras, as they now do the Alps, this will be the central point for the most grand and exciting excursions on foot, and horseback. From here, the grand peak of Mount Hoffmann, 10,872 feet high, will be climbed, and Mount Dana, 13,227 feet; or going further South, the future Alpine clubman of the Sierras will follow the track of that most daring explorer, CLARENCE KING, and attempt the ascent of Mount Whitney, a peak as difficult and nearly as high as Mount Blanc, or some 15,000 feet. There is one point in the Sierras, not very far from here, where *five* mountains over 14,000 feet, and *fifty* over 13,000 feet high, are visible. From the Yosemite, too, excursions will be made to the Tuolumne Cañon, also called *Hetch-Hetchy*, a magnificent gorge only a little inferior to this, sixteen miles north, on the Tuolumne River. It is about 3,900 feet above the sea-level, and like this, runs nearly east and west, but is only three miles long. The middle of the Cañon is cut in two by "a low spur of shelving granite," dividing it into two portions, both of which are deliciously green, and apparently fertile, but very narrow; the width varying from ten chains to three quarters of a mile. Here are granite precipices over 1800 feet high, and different falls from 1,000 to 1,700 feet in height, with an enormous volume of water in the spring. There are peaks also, and bluffs, corresponding to the Brothers and the Cathedral Rock of the Yosemite, the latter in the Tuolumne, being 2,270 feet above the valley. It has been seldom visited, except by Indians; the Pah Utahs, and

the Big Creek tribes, disputing and fighting for its possession. Its climate is said to be milder than that of the Yosemite, as is shown by the vegetation.

Mr. Hoffman, of the Topographical Corps, State Geological survey, who visited it in 1867 (from whose report these facts are taken), states that it shows distinct evidences of glaciers; that it must have been filled by one branch of an enormous glacier, forty miles long, heading near Mount Dana, and Mount Lyell. The rocks on its sides are polished with the ice, and an enormous moraine extends along the edge of the valley for several miles.*

Mr. Hutchings, as I have said, is one of the pioneers of the valley, having entered it in 1855 under great hardships and difficulties, sometimes wading in snow up to his neck, and sleeping in winter in the forest. The valley was first discovered in 1851. It had been noticed for some time that the Indians possessed a place of hiding which was unknown to the whites.

* "The Valley can be reached easily from Big Oak Flat, by taking the regular Yosemite trail by Sprague's Ranch and Big Flume, as far as Mr. Hardin's fence, between the south and middle fork of Tuolumne river, about 18 miles from Big Oak Flat. Here the trail turns off to the left, going to Wade's Meadows or Big Meadows, sometimes called Reservoir Meadows, the distance being about seven miles. From Wade's Ranch, the trail crosses the Middle fork of Tuolumne, and goes to the 'Hog Ranch;' five miles thence up divides, between the Middle fork and Main river, about two miles to another little ranch, called 'The Cañon.' From here, the trail winds down through rocks for six miles to Tuolumne Cañon. This trail is well blazed, and was made by Mr. Screech and others, for the purpose of driving sheep and cattle to the Valley; the whole distance from Big Oak Flat being thirty-eight miles.

Another trail, equally good, but a little longer, leaves the Yosemite trail about half a mile beyond the crossing of the South fork; thence crosses the Middle fork within about one and one-half miles of the south fork crossing, and follows up the divide between the Middle fork and Main river, joining the first-named trail at the 'Hog Ranch.'"—*Mr. Hoffman's report, read by Prof. Whitney, to the State Geological Society of California, and quoted in the "Evening Bulletin."*

After some uncommonly bold robberies by the Indians, who escaped as usual, the thieves were followed closely up by a Major Savage and others, and their wonderful hiding place—this celebrated Cañon—was discovered.

Mr. Hutchings squatted, or purchased of squatters on this, which was public land. He has made many improvements, built bridges and cleared paths, and laid out garden and farm, and in many ways made the valley, and the means of reaching it, known to the public. After this was done, the whole valley, together with the Mariposa grove of Big Trees, was transferred to the State by Congress, to be preserved as a park and public ground forever,—a most wise provision, showing that enlightened consideration for the future which is a true token of high civilization; for in coming years there will be a current of travelers to this valley such as now pours into Switzerland and the Tyrol, and it is obviously improper that any one individual should have the power of controlling large portions of it, or of making it in any way inconvenient or disagreeable to travelers. It should be entirely free for the public. On the other hand, Mr. Hutchings' claims ought to be considered. The Commissioners of the Park, however, brought an action of ejectment, but during the winter of 1867 and '68, Mr. H. succeeded in inducing the Legislature to pass an act giving him possession, in full, of a large tract in the Cañon, provided Congress would consent. The Governor vetoed the bill, and it was again passed over the veto, though it afterwards failed to become

law through some neglect of the Clerk of the House. The proper course would evidently be to buy up Mr. Hutchings' claims at a reasonable rate, and then leave the valley open to the public.

It will not be many years before a railroad will connect Stockton and the Foot Hills—perhaps near Hornitas—and then a coach-road be made from Mariposa to some point near the walls of the Cañon. A hotel there in that delicious climate would be crowded in the summer months.

We made our exit from the valley by the route to Black's and Coulterville; first working over a tedious ferry, six miles below, with a boat fastened to a rope stretched across the river and carried from bank to bank by the force of the current acting at a diagonal to the attachment on the opposite shore. The ascent was most steep and difficult, a constant pull in zig-zag paths for the little horses during three hours, with frightful precipices occasionally at the side. Once we crossed a slippery rock over a stream where only five or six yards separated us from an awful chasm. Yet no accident was ever known on the route. One point is of most imposing grandeur—the "Stand-point of Silence"—a spot to be remembered for various reasons by some of the party forever. There were occasional grand views, too, as we reached the height of the whole ridge; but take it as a whole, it is not equal to the Mariposa route, and is far more difficult. Black's, too, seemed a poor little house. My advice would be for most travelers both to come in and go out by Mariposa. In this way they have but twenty-

four miles to ride in one day, while by the Coulterville route they must ride forty the first day to Black's Ranch, and twelve or fourteen the second to Coulterville. The views, too, the other way are very good, and luggage can be left at the last point, "White and Hatch's" and fresh clothing thus obtained at once. From Mariposa and Bear Valley there is a regular stage connecting with Stockton; or a very interesting trip can be made along the Foot Hills to the Calaveras Grove, as we shall describe in the next chapter.

CHAPTER X.

THE SOUTHERN MINING COUNTIES.

WHAT are called the Southern Mining Counties, in California, are those sending out their treasure by Stockton—Mariposa, Tuolumne, Calaveras and Amador. They were once the great mining region of California. My journey lay from Mariposa, along the Foot Hills to Calaveras. A singular appearance attracted the attention of our party at once on the Mariposa Hills. The slates which cover the ground here had been thrown almost on end by the volcanic upheaval of this region, and then eroded or broken, so that they stood in slightly inclined gray slabs, covered with moss, and had exactly the appearance of old grave-stones in countless numbers. We seemed to be journeying through the vast burial places of ancient nations.

From Mariposa to Amador County, some 70 miles, one of the great quartz veins of California extends, where have been some of the most profitable quartz mines and placer-diggings. Near Coulterville it comes forth in a great mass of white quartz, called the Peñon Blanco (White Rock). In Mariposa there are few volcanic deposits, and therefore but little hydraulic washings. The county is covered with the

ruins of the unused buildings of quartz mills. The number of these abortive attempts can hardly be imagined. Nothing of importance was being done in quartz mining on the Mariposa Estate, owing to the internal difficulties of the Company.

TUOLUMNE COUNTY.

In this county are more of the Tertiary and Post-Tertiary and volcanic deposits, and, in consequence, more placer-diggings.

Interesting remains of the early fauna of California have been found here more than anywhere else in the State. The auriferous slates occupy a belt of some twenty-five miles in width, but the country generally is underlaid with granite, and volcanic deposits cover both granite and slates. A striking feature to the traveler's eye is the cropping out of the lime-stone belt. This vein was often the channel of the ancient rivers, which are now obliterated, and being worn by water into deep cavities, small ridges, or buttresses with a singular, corroded, and rounded form, are now left obtruding from the placer-diggings. Sometimes these curious ridges are cut with trap-dykes.

It must be remembered that a great deal of the placer-mining of the State has been done in the beds of ancient rivers, which have now utterly passed away. These streams frequently run at right angles to the courses of the present rivers, showing how grand have been the changes of the surface of the country since these old rivers washed down the fragments of quartz and golden sands from the high Sierras. These lime-

stone ridges acted, in those remote periods, as gigantic* "riffles," to catch the gold whirled down the streams, and the miner now has some of his greatest "finds" beneath them.

In this limestone belt is a very curious cave, called "Bower Cave," which we visited, but which I will not stop here to describe.

The great quartz vein cropped out again, near Jamestown. On one bank of the Stanislaus there was a singular appearance, as of coral reefs or cliffs. The people called it "lava," but it was an immense mass of calcareous tufa, formed over the auriferous gravel, and is said to contain interesting caverns. Here have been found valuable remains of the mastodon, elephant, and fossil horse.

TABLE MOUNTAIN.

One of the most interesting features of scenery on the journey, was a long mountain ridge, as level as an artificial terrace. I thought, at first, it must be an ancient river terrace; it is, however, in fact, *a river in the air* — a vast, solidified stream of lava, whose banks have vanished. This remarkable feature is well known to miners as the "Table Mountain," and is one of the most interesting evidences of the vast changes that have gone on upon the surface of the earth, that I ever remember to have seen.

Countless ages ago, when the rhinoceros browsed on the forests of the Sierras, and the hippopotamus wallowed in the streams which now yield the golden

* State Geological Survey.

gravel to the Yankee miner, and the camel (or an animal allied to it) roamed over what are now the Foot Hills, a vast stream of lava was poured down from the mountains beyond the Big Trees of Calaveras, and flowed some forty miles, till it was solidified. It can be traced now on the north side of the Stanislaus River, at a height of more than 2,000 feet above the river. Below Abby's Ferry, the Stanislaus has broken through it, but it re-appears southwest of Columbia as a mountain, and continues some twenty miles from the river. There could not be a stream of lava 140 to 150 feet thick, and 1,700 feet wide (as it is in one point) without banks in which to flow. It must have run between mountains, and have followed the channel of some ancient river, as there are some 200 feet of auriferous gravel-beds beneath it. When it was poured from its volcano there could have been no Stanislaus Valley, now 2,000 feet deep. A mountain must have filled that cañon, and also Wood's Creek on the other side, as walls for this tremendous river of lava. But its banks being of slate have all been eroded and washed away, while on the hard, basaltic lava, hundreds of thousands of years have hardly made a wrinkle or furrow. It stands level as if by art, more solid than a mountain, almost untouched by time, while the surrounding country has been nearly washed away, and a furrow through it (and the slates) has been worn 2,000 feet deep by the slow action of a mountain torrent.

Beneath this hoary monument of antiquity the modern miner has been very busy, and some of the

richest "hauls" in California have been made here, yet it is estimated that $1,000,000 more have been put in the Table Mountain, than taken out.*

If any of my readers have any lingering romance about a mining country, or the "golden sands" of California, they should travel through the "Southern Mining Counties." Mining, at the best, is a sort of devil's or ghoul's work, on a landscape. The curse of nature seems to follow it. Even fresh battle-fields are soon covered with grass, and flowers, and grain; but no green thing grows where the miner hath been. The shining meadows, with the gay wild flowers of California, are dug up as if with fresh-made graves; the rounded outline of the hills is broken with heaps of dirt; green slopes are disfigured with unsightly piles of gravel and stones; fields are covered with sand and pebbles, as if from an inundation; the clear mountain streams are muddy with dirt; trees are overthrown, and vineyards and farm-houses undermined; the whole landscape is a picture of roughness, waste, and desolation.

But what shall I say of a deserted mining country, such as these counties! For fifty miles, traveling through this scene of chaos, we saw but one white miner; he stood, as pale as a corpse, in deep water, guiding listlessly a hydraulic pipe, and did not even look up as our party stopped, in a carriage, close by him, to gaze at his work. Here and there a lonely Chinaman, in some river bottom, was pensively shaking his rocker, gleaning what the Americans had

*J. Ross Browne.

abandoned, or two or three were quietly working some sluice in gold dirt, already sifted over and over again. The towns, rightly named "camps," seemed almost abandoned. People had left them when the tide of fortune turned, as the hunter leaves his "camp" when game fails. The long streets of gambling hells and drinking-saloons were almost empty.

The saddest relics of the past were, here and there, the young men who had failed in mining and were broken down by drink, and now haunting the old diggings and the taverns for a chance job. They seemed, sometimes, men of education, and perhaps, of former wealth.

What histories of tragic struggle with fortune and of defeat there are unwritten in California! How many young men, for whom still fond hearts of sisters or mothers beat lovingly in vain, have fought the battle of life here unsuccessfully, and have died, as men know how to die, in solitude and desertion, without a murmur or a groan. For in California, men who fail, are too proud to return to the East, or to ask sympathy or help. I know nothing more touching than, in these scenes of former greed and insane money-getting, to see occasionally a miner's grave. We can well imagine with what hope and courage that man had struck for fortune in these desolate places, where wealth sometimes came in a day; how he had tried and tried again, each time with lessening hope and weaker power; how the best years slipped away while he lost all that is worth having, for the sake of the gold that always became ashes as he reached it. At

last, the weary labor ended, and with broken heart he is laid in an unknown grave, beside the gold-dust he had so vainly labored for.

I hope I may not be thought too melancholy in my picture of an old mining country, but certainly, at this time, the California southern mining-counties have a funereal aspect. There is here a fine opportunity for a Ruskinian moralist. Gold-hunting, in the ground, seems to curse not only the unhappy seekers, but nature itself. And yet this is but a superficial view. Gold-mining, as it is now in some northern counties, under responsible persons or associations and proper management, does not differ from any other business in its moral effects. And even here, Nature is beginning to assert her "healing power." Near Columbia and other towns, green vineyards are covering the unsightly heaps of gravel and the volcanic deposits turned up by the insatiable gold-diggers; the bowie-knife of the miner is turned into the pruning-hook, and the pick-ax to the hoe; the ancient gold-sluices, in which water was brought from distant mountains, are now used as irrigating canals, and the sands that furnished the gold, now give the sustenance needed for the grape.

The receipts at San Francisco, from the southern mines, during the year 1867, were $1,477,462; in 1866, $5,149,749, and in 1865, $6,426,260; in 1864, $6,858,153; in 1861, $9,363,214. The northern mines, during the year 1867, delivered $13,927,309. The former produce of the southern mines has reached, as we see, nearly $10,000,000; and the greater part

from placer-diggings. At the present time, there are probably not a hundred thousand dollars a year obtained from these; nearly the whole product must be from quartz mining.

COPPER MINING.

The Foot Hills of Calaveras County are the seat of the copper mining of the State. We visited the mine at Copperopolis, the Union, one of the largest copper deposits in the world. The ore is not found in fissure veins, but in large independent masses, lying in the direction of the strike of the inclosing rocks, and dipping with them. The rocks are chloride and clay-slates,* passing into hornblende slate and hornblende rock.

There was little doing in this rich mine when I was there. Expenses are probably too great to make the produce remunerative, especially with the large supply in other countries. The shipments of copper from California, in 1863, were 5,933 tons, value, $512,925; in 1864, 14,315, value, $1,094,660; in the first six months of 1867, 3,444 tons, which did not pay expenses.†

THE MINER'S LAW.

As one passes through the mining districts, one hears continually of the "Miner's Local Law." It is a curious matter, and has interested me greatly. Here is an almost unwritten body of laws which has come down perhaps, in some of its features, from the

* State Geological Survey.

† Copper which sold in San Francisco at 14 cts. per lb. in 1865, sold in 1867 at 9 cents.

British Celts before Cæsar, or from the Iberians in Spain, constantly enlarged and adapted to new circumstances, improved especially in Mexico and Spain, now remodeled by Yankee genius, and so founded on common sense and the principles of justice, as to be recognized by the State and United States Courts of this coast, and allowed by State Law and by Congress, where not directly opposed to previous legislation. Some of our ambitious orators have claimed this unwritten law as especially an American invention, but its origin is undoubtedly to be found in Spanish and Mexican Mining Law, and in the customs and regulations of the local courts (or *Stannaries*) of the tin-miners of Devon and Cornwall, and the lead-workers of Derby. Its great principle, Gen. Halleck states to be, that the title to mining-property depends on discovery, and the continuance of title to the working or development of it.

Mr. G. YALE has written an admirable treatise on it, in a work called "Legal Titles to Mining-Claims and Water-Rights in California."*

This body of laws relates to the public meetings of miners, and the forms to be followed; the names and boundaries of claims; the right of the discoverer to a double claim, and the limiting of the locator to only one claim, with many other matters relating thereto.

Commissioner Browne, in his Report, so often quoted, estimates the number of mining-districts at 500, and states that the mining-regulations will fill a thousand pages.

* Roman & Co., San Francisco, 1867.

He thus describes them (pp. 226–7): "There are not less than five hundred mining districts in California, two hundred in Nevada, and one hundred each in Arizona, Idaho, and Oregon, each with its set of written regulations. The main objects of the regulations are to fix the boundaries of the district, the size of the claims, the manner in which claims shall be marked and recorded, the amount of work which must be done to secure the title, and the circumstances under which the claim is considered abandoned and open to occupation by new claimants. The districts usually do not contain more than a hundred square miles, frequently not more than ten, and there are, in places, a dozen within a radius of ten miles. In lode-mining, the claims are usually two hundred feet long on the lode; in placers, the size depends on the character of the diggings and the amount of labor necessary to open them. In hill-diggings, where the pay-dirt is reached by long tunnels, the claim is usually a hundred feet wide, and reaches to the middle of the hill. Neglect to work a placer claim for ten days, in the season when it can be worked, is ordinarily considered as an abandonment. The regulations in the different districts are so various, however, that it is impossible to reduce them to a few classes comprehending all their provisions. The States of Nevada and Oregon, and the Territories of Idaho and Arizona have each adopted statutes in regard to the size and tenure of mining-claims, and these statutes, so far as they conflict with the district regulations, probably supersede them, although the Act of the last session of Congress, to

legalize the occupation of the mineral lands, provides for the issue of patents to only the holders of those lode-claims which are occupied and improved according to the local custom or rules of miners in the district where the same is located."

Mr. Browne, however, with many others, thinks that the existing local law is very imperfect and inadequate, both to the wants of the present and future mining interest on this coast. There is no uniformity in it. California has some five hundred districts, and the law at one point may vary from the law five miles away, while a peculiar "custom" of a district may supersede all law.

"Again, in one district the work required to be done to hold a claim is nominal; in another, exorbitant; in another, abolished; in another, adjourned from year to year. A stranger seeking to ascertain the law, is surprised to learn that there is no satisfactory public record to which he can refer, no public officer to whom he may apply, who is under any bond or obligation to furnish him information, or guarantee its authenticity. Often, in the newer districts, he finds there is not the semblance of a code, but a simple resolution adopting the code of some other district, which may be a hundred miles distant. What guarantee has he for investment of either capital or labor under such a system?

"Again, under the present loose organization of districts, with their vagueness of boundary, it is often impossible to determine by which code of laws a location is governed. Cases of this kind have already

arisen in several districts, and are liable to do so again in any part of the State; and, under the present system, there is no means of guarding against it, except by an actual survey of the boundaries of every district—an incalculable expense."

There is no permanency, either, in these regulations. A miners' meeting adopts one code, and then, a few weeks after, another is called together, and radically changes the previous proceedings. Neither is there protection to the miner nor encouragement to capital in them.

The different sizes of claims in different States, and in different counties of the same State, is a source of great perplexity. Now, in Arizona, the claim may be 600 feet square, under statute; in Oregon, 300 by 150 feet; in Idaho, 200 by 100 feet; in Nevada County (Cal.), by miners' regulations, 100 feet; in Tuolumne County, 150 by 150 feet; Sierra County, 250 by 250 feet; and so on.

The great difficulty in the mining regions of the Pacific coast, as I have often said before, has been *the uncertainty of mining titles.* The miner has had no home and no permanent interest in the soil. He has merely wasted the country, like a conqueror, and then retired to other regions to enjoy his gains. Mr. Browne estimates that since the mines have been opened, $900,000,000 have been taken from the ground, besides the immense production from agriculture, while the whole taxable property of the State, of which nearly one-half is land, is only $180,000,000; showing how little of the acquired wealth has remained

in the State. As long ago as 1849, President Taylor, in his annual message, wisely said that "a permanent right of property in soil was as important to the success of mining as of agricultural pursuits."

Congress has finally recognized this simple principle by a legislation considered, in California, the most important ever framed for the interests of the mining population of this coast: it is the Act of July 26, 1866, "granting titles in fee" to miners. By this law, all mineral lands of the United States are declared free to explore and to occupy by all citizens, or those who have declared their intention to be citizens. The land of any claim must be occupied and improved, and not less than $1,000 be spent on it, in labor and improvements, to give a continuance of title.

On May 20, 1862, no pre-emption laws existed in California. On May 30, 1862, these laws were extended to California, not, however, embracing the mineral lands. But, by this act of 1866, all mineral lands reserved from the operation of the Homestead law and the Pre-emption law, where no valuable mines have been discovered, can be pre-empted in favor of parties in possession who have improved homesteads for agricultural purposes. They can prove possession, and pay the Government price ($1.25 per acre), or they can secure a patent for 160 acres by a five years' residence, without payment.

As Yale justly says, "if lands for homes cannot be granted in mining regions without containing minerals, then they must be granted in small parcels, with min-

erals. The presence of minerals is not the fault of the miner (or owner), and a generous Government should not complain, on making a donation, that it is accidentally more valuable than the owner could help." (p. 381.)

The miner thus becomes, by this Act, as much a free-holder and possessor of the soil, as any farmer who has obtained a homestead on public lands. Henceforth, he has a settled interest in the soil. He is no longer, by necessity, a rover and emigrant. He has a motive to build up, and beautify a home. He can have family ties, and family interests. A true foundation is thus laid for a settled society in the mining regions of the United States by this important legislation.

The second section of this Act enacts that the claim to a "lode, or vein of rock, bearing gold, silver," etc., must have been worked and occupied according to "local customs of miners," and, also, that it is to extend "laterally, or otherwise, so as to conform to the local laws." But, in section 4, it is provided that "no location hereafter made shall exceed 200 feet in length along the vein for each locator, with an additional claim for discovery to the discoverer," etc., and that no one person may make more than one location on the same lode, and not more than 3,000 feet shall be taken in any one claim, by any association of persons."

Mr. Browne urges very forcibly, that this recognizing "the local customs," leaves the size of claims in different States unequal, though reducing all to at

least 200 feet—moreover, any individual can have as much by purchase as he chooses, and thus Companies may have immense tracts without improving them. He accordingly advises an amendment of the Act, "that no Company shall be permitted to possess a claim more than 2,000 feet in length." He thinks also, that in imitation of Mexican laws, each locator should be allowed to hold 500 feet. The width of claims, too, is subject to local customs, which are exceedingly various. "In Arizona, it is three hundred feet on each side of the middle of the lode; in Oregon, it is twenty-five feet on each side of the lode; in Idaho, it is a tract one hundred feet wide; in Tuolumne County, California, it is one hundred and fifty feet on each side of the lode; in Sierra County, California, it is two hundred and fifty feet wide on each side; in the Copperopolis District, it is three hundred feet wide, in the State of Nevada, Nevada County, California, and in many other counties of California, it is all the land that is actually occupied by the works of the Company or miner."

The work required to hold claims, varies exceedingly, in different districts. One hundred dollars worth of work in Idaho, gives perpetual title, while fifty dollars annually, is required in Oregon; one hundred dollars worth annually, in Nevada County; and in Nevada, the payment of two cents per lineal foot, annually, gives a perpetual claim.

The Law of Congress ought to settle this diversity, and to lay a permanent foundation, for centuries to come, for the mining interest. The various conflict-

ing local customs and regulations could certainly be digested into a uniform, practical, and impartial code, for all the mineral lands of the United States.

CHAPTER XI.

THE DIGGER INDIANS OF CALIFORNIA—THEIR HABITS AND CUSTOMS—THE ANTEDILUVIAN INDIAN.

On our recent journey we stopped for the night at a well-known ranch. Around the house were those magnificent and symmetrical trees of which I have so often spoken—the sugar pines, reaching here a height of over 200 feet.

Beneath one of these queenly trees, as we rode in, was a little camp of "Digger Indians." I examined them with interest, as, perhaps, the lowest tribe of the human race, and, it may be, the oldest. The men were small, short, pot-bellied, and small limbed, with complexions as dark as some tribes of negroes, cheek-bones high and prominent, the eyes far apart, with deep overhanging eyebrows, and masses of long, straight, ink-black hair growing low over the forehead. The frontal head was not low. The women were taller in proportion and better looking, sometimes with a deep, rich, coppery complexion. They were all disgustingly dirty, and with but little clothing on them—mostly pieces of the old clothing of the whites. At night I was awakened and disturbed by a long, wild cry, between a wail and a supplication, proceeding sometimes from their tent, and sometimes from the

forest near it. It was singularly wild and plaintive. I inquired in the morning what it was. "It was them cussed Injuns," I was told, "yellin' 'cause a squaw's sick—goin' to die, I s'ppose!" I went over to the tent and found a woman lying naked, under the furs of some wild animals outside the tent, and some other women muttering spells over her, and caring for her most tenderly; others, their faces blackened with pitch (as a sign of grief), were weeping bitterly. I felt her pulse; she was in high fever and evidently suffering much pain; probably under a severe attack of rheumatic fever, to which these poor creatures are very subject, from their exposed life. Around her were conical baskets of willow or osier, made so close as to be filled with liquid, and dishes of the manzanita seed, and roasted acorns (their favorite food), with baskets of snails for frying. Other baskets in the tent contained pine-seed, from which they extract a nutritious food. Their favorite tidbits, later in the season, are roasted grasshoppers and fried crickets. Everything was dirty and miserable about their quarters, to the last degree. They seemed, as they truly are, among the lowest tribes of the human race, though the immemorial aborigines of California.

The travelers of the ranch spoke of their wailing over the sick woman as we would speak of the howlings of dogs, but to me their grief seemed as full of human affection as it ever does among the refined and the intelligent. Evidently, they clung to the form of the dying woman as we cling to the forms of our beloved ones, and it was as hard to speak the last word

to the cold ear of the poor Indian squaw beneath the pine-tree shadow, as it is for us beneath the curtained bed, and Death tore at their heart-strings just as it tears at ours. That night, as the wild, agonized wail, which was half a supplication, sounded through the forest, there seemed to me in it the same immeasurable depth which belongs everywhere to human sorrow, and I thought that the ear which catches every human groan, and listens to the cry of the lowest, must have opened most tenderly of all to that wail of depressed agony, and to that inarticulate, agonizing prayer.

The dead are nearly always burned by the Digger Indians; and it is said that the name of the departed is never mentioned, and if it be casually spoken, a shudder passes over the bystanders.

A close observer* of these tribes, after describing the death and the funeral ceremony of an Indian, says: "During this scene, I observed the females, as they jumped about, pointing in several directions, and ejaculating something I did not understand. On inquiry, I learned they were pointing toward places where they had been with the deceased in childhood —gathering food, feasting, or on some other occasions of pleasure — and they were crying, '*No more yonder! No more yonder!*'"

Again: "During the whole time, from the death of the individual, there was one who gave utterance to his sorrow in loud and broken strains. * * * On one occasion, I observed him drawing marks in

* A. Johnston. (Schoolcraft's Hist. of Indian Tribes. Vol. 4.)

the sand as he spoke. He said, 'We are like these lines! to-day we are here and can be seen; but death takes one away and then another, as the winds wipe out these lines in the sand, until all are gone!' and, drawing his hand over the marks, he continued, 'they are all gone even now—like them, we must all be wiped out, and will be seen no more!'"*

So far as I can gather from conversation and research, these Root Diggers, or *Bonacks*, had no religious belief before the arrival of the Spaniards. Their idea of a Great Spirit is undoubtedly a reflex of Christian teachings—as it is probably with most, if not all, of our Eastern tribes. The only tradition of the future life I have heard of among them, is that after death the spirits sail over a great water in a canoe, and with the bad, the bottom drops out, and they are drowned,

* Compare the rites of our ancestors, the Aryans, in India, as pictured by Max Mueller.

"Depart thou, depart thou by the ancient paths to the place whither our fathers have departed. Meet with the ancient ones;† meet with the Lord of Death; obtain thy desires in heaven. Throwing off thy imperfections go to thy home. Become united with a body; clothe thyself in a shining form. Go ye; depart ye; hasten ye from hence."‡ The responses might then fitly come in: "Let him depart to those for whom flow the rivers of nectar. Let him depart to those who through meditation, have obtained the victory; who by fixing their thoughts on the unseen, have gone to heaven. . . . Let him depart to the mighty in battle, to the heroes who have laid down their lives for others, to those who have bestowed their goods on the poor."§

Returning to the direct form of address: "May sweet breezes blow upon thee. May the water-shedding angels bear thee upward, cooling thee with their swift motion through the air, and sprinkling thee with dew. May thy soul go to its own and hasten to the fathers." The service might fitly conclude with a chorus from the Veda: "Bear him; carry him; let him with, all his faculties complete, go to the world of the righteous. Crossing the dark valley which spreadeth boundless around him, let the unborn soul ascend to heaven. . . . Wash the feet of him who is stained with sin, let him go upward with cleansed feet. Crossing the gloom, gazing with wonder in many directions, let the unborn soul go up to heaven"

† The Pitrs. ‡ Rig Veda, x. 14. § x. 154.

while the good go to a land of plenty, where they drink and gamble for ages of ages. This is, without doubt, a modern notion.

It is remarkable that this—one of the lowest tribes on earth—has a wide-spread tradition of its derivation from animals.

They believe that the *coyoté* (the wolf) is their forefather.* At first, when the coyoté died, the body became full of little animals or spirits, which took various shapes, some of deer, or elk, or antelope. But most took wings and flew away. The old coyotés feared that the earth would become depopulated by such a continual flight, and had the body burned. After this the body began to assume the shape of man, at first very imperfectly; first walking on all fours, then acquiring one finger, then a toe, an eye, then two fingers, two eyes, and so on, until the perfect man was formed. After a while, this creature got into the habit of sitting, and wore off his tail, which is still a matter of much grief to the Bonacks, as they consider the tail quite an ornament, and often decorate themselves with one, at their dances and festivities.†

All branches of the Aztec race are said by Brinton to worship the dog. The Nahuas had a temple for it, and a congregation of priests devoted to its service, and elaborate statues and a tomb were erected to its memory.

Many of the Athabascan tribes and the West Eskimos believe in their descent from a dog; and the

* Johnston. (Hist. of Indian tribes.) † Johnston.

Trukuways of Texas* celebrate their connection with a wolf by a grand annual dance, all dressed in wolf-skins. Whether the Digger myth is simply a recalling of the universal symbol (a dog) of the Water-Goddess — the moon, or whether it is founded on their respect for wolfish qualities, or on some vague tradition of animal descent, we have no means of deciding.

Some tribes of Digger Indians have been known to sacrifice their widows on the funeral pyres of their husbands. Nearly all testimony agrees that they have no religious belief. The languages of the tribes of the Sacramento river (the Cushna) and of the Castanos, whom I suppose to be Bonacks, have no words for God, devil, or angel. The Cushna has none likewise for scalp, or for the different seasons, or for sail, or boat. The Castanos count to tens and then by tens; they have no word for war-club.

The Digger Indians are diminishing continually—through the usual causes which destroy savage races in contact with civilized, from the excessive use of alcoholic drinks, and from the diseases of the whites.

There are laws, strictly enforced, making it a penal offense, punishable with fine and imprisonment, to sell liquor to Indians; they still succeed, however, in procuring some. They, and their related branches, are the only tribes in America who never had any agriculture. Their only stores for winter were pine seeds, acorns, and grass seeds. This miserable diet

* Brinton's "Myths of the New World," p. 221.

has caused their poor physique, though it does not seem to have diminished their vitality, as they were remarkably long-lived when the whites arrived. They seldom use a gun, but have bows of great elasticity and strength. In winter their dwellings are conical frames of wood, covered with earth, with an aperture for the escape of the smoke, and one in the side for entrance. A few have wooden cabins, like the miners. According to those who have studied their habits closely, they are polygamists, though on account of their poverty it is rare to see a man with more than one wife. There is no marriage ceremony; and the wife can leave the husband for good cause, but while with him, she is considered his property. They burn their dead, as I have said, and the women put on mourning by smearing the face, shoulders, and breast with black pitch. They are said to have a clear code of their own of right and wrong.

Mr. WAITE, speaking of the Diggers of Nevada County, says:

"The Indian of this region has many points of resemblance with his Eastern brother. The same arrow-head, the same council house, where the chief receives his friends, the same taciturnity and gravity, the same medicine man, the same respect for dreamers or prophets, and the same improvidence belong to the race. But he differs widely in other respects. The Nevada Indian is not migratory; he practices no torture on his enemies; the rite of adoption of wives and children of enemies is not known, but all are killed indiscriminately; chiefs are not hereditary or selected for prowess, but are chosen for other qualities—principally, it would seem, for ability to entertain or reward their friends. There is no regular chief to the tribe at present. Like all barbarous races, the Indian is addicted to games of chance, and like the Eastern Indians they tattoo themselves, but unlike them, they do not scalp their enemies."

As our party were riding recently through the forest in Mariposa County, we suddenly heard a strange yelling, and found ourselves right in the midst of an encampment of these Indians. It was beautifully chosen, on an open grassy knoll, in the midst of the thick trees, with a clear delicious spring on one side. A chief, far above the usual appearance of the Diggers, came forward to meet us. He looked like the best of our Eastern Indians, hale and strongly made, with an aquiline nose, dark copper complexion, and well shaped head, and the usual long, black hair low on the forehead. He was said to be a great hunter, and had a rifle in his hand. The others were sitting or lying on the ground, evidently having no covering for the night. They were short, weakly, miserable looking creatures, except some of the women, who appeared to have a better physique. These last were only half clad, and had long pendulous breasts. They all seemed exceedingly harmless, good natured creatures, and took the jokes of some of the party in the liveliest way.

Colonel N. created immense amusement by offering a silver quarter for a kiss, which was accepted, to his dismay, by a hideous looking squaw. He stooped from his horse, and dropping the silver instead of the kiss, immediately spurred his horse, and rode away in the forest, amid their shouts of laughter.

These all had Manzanita apples and acorns, for stores, and pine-seeds to make bread with. Their baskets were some two feet long, conical, and woven so close that they carry water in them. The women sling one

over the shoulder, and with a little scoop, sweep the seed of the high grass into the basket. Some of them had for a head-dress a round bowl-shaped basket, interwoven with the red feathers of the wood-pecker and the blue of the crested quail.

Their favorite food, grasshoppers, is caught by digging a long ditch and making a fire in it: the grasshoppers are then driven in large quantities into it, and are afterward gathered in a crisped condition, by the basketful. Old trappers say they are as good as shrimps for the table.

I have never seen anything which can be called a cabin for them. Their wigwams in summer are mere arbors of leaves and a few branches. They have, however, as before mentioned, a Council Hut, and a "Sweat House." In this latter, any one who is sick or tired is placed, and the hut is heated by fires to the highest endurable degree; and then the patient, after a tremendous perspiration, is taken out and plunged into a stream of cold water. This is the water-cure with a vengeance.

The Root Diggers, or Bonacks, are the lowest branch of a low race—the Shoshonees—the Indians who held the Rocky Mountains and all the salt deserts and barren mountain chains from the sources of the Missouri, through the Utah basin, the Sierras, and south to New Mexico and Texas. They are probably a degraded branch of the leading Indian race on this continent—the Aztec*—who reached a considerable

* For the connection between the Shoshonees and Aztec, see J. C Ed. *Buschmann, ueber die Spuren der Aztek, Spr. im Nord. Mex. et, al.* Berlin, 1859. He makes the Bonacks, or *Panasht*, a branch of the Comanche-Shoshonee family, and thus a probable member of the great Sonora or Aztec family.

civilization. This family is divided into two branches, the *Nahuas* and *Toltecs*. The former considered themselves as coming from the north-west coast, traveling south until they reached Mexico. Traces of the Aztec language are found from Nicaragua to Vancouver's Island.

The Bonacks were probably originally driven from the prairies to their barren mountain and plateau region, and as game was scarce and difficult to secure, they gradually sank in the scale of being, and became root-diggers, not only not attaining the dignity of cultivators of the soil, but not even being hunters, except in one branch—the Comanches. These, since the arrival of the whites, in some way received, or stole, the great benefit of the *horse*, and at once rose above their mountain brethren. In fact, whenever a horse-using tribe comes in competition, in the "struggle for existence," with a tribe of footmen, it must inevitably force them out of their hunting-grounds.

The Comanches, though as morally degraded as the Bonacks, became most fierce and energetic warriors, and far superior to the people from which language shows them to have sprung. Some of the branches of the Shoshonees, in Oregon, on the salmon streams, again, seem superior to the mountain tribes, owing probably to their fish diet, and the social organization which springs from fishery. The Root Diggers of California, bringing with them the long inherited listlessness, want of inventiveness, ignorance, weak physique, and habits of low diet and degradation of the Shoshonees of the great Salt Basin, and entering a country where game

is not very plentiful, have fallen still lower than their low ancestors, and become one of the most degraded tribes of man on earth; having no monuments or tumuli or mounds, no art or architecture or painting, no pottery or image making,*† or ornaments (except the very rudest), no war-club, or battle-axe, or tomahawk; "without," says a faithful authority, "a single method of recording thought or action, without idols, sacrifices, prayers or priest," with no temple, and so far as is known, no religious belief.

And yet the average volume of the Shoshonee brain is not small, being 81 cubic inches, while the average among all the barbarous North American Indian tribes is only 83½ to 84, and of the Mexican 79, and the Peruvian 75.‡ Even our New York tribes, the Iroquois, can boast only of 88½.

The Shoshonee facial angle average is 76½.

The singular superiority in volume to the Peruvian is in the cerebellum, in the animal propensities, the frontal region being much smaller. The Peruvian reached a considerable civilization, and was easily conquered. The Comanche is a savage, but will probably never be subdued; he will perish first.

THE ANTEDILUVIAN INDIAN.

The Digger Indian has been to me an object of peculiar interest, because there seems strong reason for believing him one of the oldest tribes on the earth,

* A. Johnston.

† A rude wooden image has been found once on this coast, but is not regarded as an idol. The Bonacks have stone knives and darts of obsidian.

‡ Morton.

that has remained for immemorial ages in just its present condition of barbarism.

It is well known to geologists and to miners that at a period, as measured by historical records, immensely remote, the Sierras were the scene of a wide-extended volcanic action and disturbance. Vast streams of lava were poured forth from burning volcanoes, often in valleys whose mountain-sides are now quite obliterated and worn away. The slopes of the Sierras are covered now with these volcanic deposits. Since they were poured forth, new mountains have been formed, the ancient rivers have been filled up or turned from their courses, and the enormous cañons of these American Alps have been worn away by the slow action of the new rivers. One can form thus a feeble estimate of the time which must have elapsed since that period of eruption and disturbance.

And yet, even in the vastly ancient period preceding this—in the Pliocene of California—there is reason to believe that man existed (at the same time with the rhinoceros, the camel, or a species allied to it, and the fossil horse), in an antiquity far beyond that of the flint-makers of Abbeville and Amiens, and outreaching all human estimates of time.

The facts are these:

A human skull was found in a shaft sunk on a mining claim at Altaville, near Angelo, Calaveras county, Cal., by a Mr. James Matson. Mr. Matson states that it was found at a depth of about 130 feet, in a bed of gravel five feet in thickness, above which are four beds of consolidated volcanic ash, locally known as

"lava." These volcanic beds are separated from each other by layers of gravel, described thus:

1.	Black lava	40 feet
2.	Gravel	3 feet
3.	Light lava	30 feet
4.	Gravel	5 feet
5.	Light lava	15 feet
6.	Gravel	25 feet
7.	Dark brown lava	9 feet
8.	Gravel	5 feet
9.	Red lava	4 feet
10.	Red gravel	17 feet
	Total	153 feet

The skull was found in bed No. 8, just above the lower stratum of lava. It was covered, and partly incrusted with stony matter. The portions preserved are the frontal bone, the nasal bone, the superior maxillary bone of the right side, the malar bones, a part of the temporal bone of the left side, with the mastoid process, and zygomatic process, and the whole of the orbits of both eyes.

The base of the skull is imbedded in a mass of bone-breccia and small pebbles of volcanic rock, incrusted with a thin layer of carbonate of lime. It is now deposited in the office of the State Geological Survey. To the most superficial eye it has a remarkable resemblance to the skull of the Digger Indian; the same rather elevated frontal region and yet large cerebellum, making the animal organs prominent, though showing no marked deficiency in the intellectual process; the

facial angle fair, the same width between the eyes and overhanging process over them; and the same remarkable width between the parietal bones, in the transverse diameter of the skull, a similar height of the cheek bones, with large and square orbits and wide nasal orifice. The most remarkable feature of the skull was the great thickness of its bone-covering; otherwise it was by no means a low or degenerated type.

The facts in regard to the discovery of the skull, stated above, were given in a paper, by Prof. J. D. WHITNEY, read before the California Academy of Sciences. He states, however, that he purposes visiting the locality itself, and seeing the exact place in which this interesting relic was discovered. I visited the neighborhood, but learned that the shaft was still full of water, and therefore could not be examined.

Subsequently the skull was examined by Dr. Wyman, and on "clearing away the mass of calcareous tufa which filled the cavity of the zygomatic arch, there were taken out two metatarsal bones, the lower end of a left fibula, part of the ulna, the end of a sternum bone, (all, perhaps, of the same skeleton,) also a fragment of a human tibia, too small for this skeleton, and a shell of *Helix mormonensis*."

The gravel was cleared away from the skull, and the lower jaw isolated and cleaned. The skull had been fractured by violence, with the loss of the left frontal and posterior portion. The teeth and alveolar process showed it to belong to an old person, but it

was uncertain whether the skull was long or broad. (Sill. Journal, Sept. 1868.)

The teeth of the Mastodon have been found in the same deposit.

As a confirmation of the truth of this discovery, Dr. C. F. Winslow writes to the *Journal of Science*, (Nov., 1868), that he sent to the Boston Society of Natural History, in October, 1857, a fragment of a human skull found 180 feet below the surface of the Table Mountain, in the volcanic deposit. Few facts then having been ascertained in regard to human antiquity, the discovery attracted no attention.

Even if this skull, by some accident, should have been dropped into these deposits, (which is exceedingly improbable,) it belongs without doubt, then, to another ancient period—the Post Pliocene, just succeeding the volcanic epoch—in whose remains many human implements, such as stone mortars, and flint arrow heads, have been found, though thus far, no human bones. At that remote period, the mastodon and the elephant wandered through the forests of the Sierras, and the tapir, the buffalo, and the horse abounded in the valleys. There seem no distinct flint, bone, and stone ages in California among the ancient inhabitants. Flint and stone are found together, and I believe no bone implements. It would thus appear that, countless ages since, the prototypes, and probably the ancestors of the Digger Indians, plucked the seeds, and hunted the small animals, of the Sierras. They seem even to have been superior to the present tribes, for these have no movable stone-mor-

tars, but grind their seeds in natural cavities of the rocks. This skull, if different, is probably superior to the skull of the average modern Indian of California.

For centuries beyond reckoning, this low and degraded tribe has lived in a state of unchanging barbarism, suited to its surroundings, and therefore continuing to exist. There is nothing in this opposed to the Darwinian hypothesis,* as is assumed by some. The fossil Indians have not "developed," because it was not necessary in their "struggle for existence." Their low types, like those of the *Lingula* and *Terebratulina*, were adapted to their circumstances through all periods of time.

* The Darwinian discovery (for though first promulgated by Dr. Wells, and contemporaneously hit upon by Mr. Wallace, its application and development are especially due to Mr. Darwin) of the law of Natural Selection is one of the great events in modern science, and constitutes, it seems to me, a step in the mental progress of the race. The influence of this discovery is felt now in every branch of scientific investigation, and though it may not be a perfect Hypothesis of Origin, it will at least explain the source and mode of formation of vast numbers of the forms of life. Its application to the Human Races, and its demonstration of their Unity and immense Antiquity, seem almost irrefutable.

CHAPTER XII.

THE COLLEGE OF CALIFORNIA AND THE PROPOSED UNIVERSITY.

The more any one traverses this State, the more he will be compelled to say, that far more important than the workers in the mines, on the farms, in the vineyards, or the orange groves, are the moral workers—the men laying the moral foundations of society. Even in a material point of view, this is true. California can spare any class of men sooner than those who are patiently and laboriously seeking to build up the education, the charities, and the religious interests of the State. The great obstacle to the progress of the Pacific Coast, which—if the marvelous natural resources of these States be estimated—has made their development far slower, relatively, than that of our Northwestern States, has always been the want of permanency in the population. People came to make money, and then returned to the Eastern Coast. No one thought of enjoying his wealth here. There was little sense of home among the Americans in California. To this day they talk of the older States as "home," or as "the States," while this region is "California," as if it were outside of their country. Never was there a new community full of material prosperity, where so many emigrated. The wealth

poured forth from these golden sands flowed away to enrich other soils. Had California continued to increase as did our Central West, or the Northwest, she would now have had millions of inhabitants. And the reason of the exodus of her population, and the want of immigration, till now every branch of labor feels the evil, was simply the absence or insufficiency of the great moral agencies of society. There were few schools, few churches, no colleges here. Art and literature and science could hardly live. Few cared for the things unseen and eternal. This was not the place for families, or for the education of children, or to possess a refined home. Women, especially, disliked it. The tide was all toward sudden and material wealth. Men who had made money, could not enjoy it here, and men who sought to make it, preferred a community where the highest enjoyments and the noblest aspirations need not be entirely sacrificed to the pursuit of gain. So it naturally resulted that men who left, did not return, and new men, and especially families, did not enter the State at all in the proportion which might have been expected, considering the marvelous attractions offered. And thus, under the retribution of a great moral law, was the prodigious development of the Golden State, which was everywhere reasonably predicted, fatally and sadly arrested. But during all these years of materialism, there were here, as everywhere under Christianity, patient and laborious moral workers plying their hard task, "seeking not the things of their own," but those which belong to other generations, and a distant future; toiling for

principles amid the undisguised contempt of a community who cared only for gold; laying patiently the foundations of education, and morality, and religion, in a population which lived in a fever of gambling, speculation, and money-getting. No one who was not here in the early years of California history, can truly appreciate the heroic labors and patient toils of these "enthusiasts for humanity," who were despised and neglected then, but whose labors, now just bearing fruit in various quarters, are seen to be worth more, even to the material interests of California, than all her gold mines.

THE CALIFORNIA COLLEGE.

Many of my readers will remember that years ago, when Rev. Dr. BUSHNELL was here, he, in company with Rev. Dr. WILLEY, Prof. DURANT, and others, labored for the establishment of a "College of California." Their efforts finally culminated in the foundation of a College under the Presidency of Dr. WILLEY, long known as a most unselfish worker for humanity and religion on this coast, with a small corps of well-trained and thoughtful Professors.

The College is, as yet, an institution chiefly in embryo, but as a nucleus of the future intellectual life on the Pacific Coast, it is deeply interesting. It is fortunately planted in Oakland, a sort of Brooklyn to San Francisco, but enjoying a much pleasanter climate than the capital, and which has become a kind of intellectual center in California. Here are the best private female schools in the State. Here is the

Deaf Dumb and Blind Asylum, under a Superintendent well known in New York, Mr. WILKINSON; and here the College has a Preparatory Academy, built up by the energy of Rev. Mr. BRAYTON, containing over two hundred pupils from all parts of the Pacific Coast. Innumerable villas and pretty houses are built here, so that for society, and many of the advantages of education, this is one of the best points in California for a residence. The Trustees of the College hold themselves peculiarly happy in having early secured the assistance and labors of Mr. F. L. OLMSTED, the well-known landscape gardener, in laying out their grounds. If his plan be carried out, the College grounds in Oakland will be one of the prettiest bits of artificial and natural landscape in California. The great misfortune, however, seems to be that, even yet, the wealth of San Francisco has not reached that stage of civilization in which such intangible and distant benefits, as a college for learning, are liberally endowed, and the consequence is, the College is constantly forced to sell portions of its splendid estate to keep itself above water, thus consuming its material capital. The Trustees have the design, in their plans for future education, not to fall into the great error of the Eastern and European institutions of learning—the neglect of natural science—but to make that one of the leading branches taught. They feel the immense importance, even for a professional or business man, to understand the alphabet of science; the pleasure it gives to his observation of nature, and the use it is to him in practical life. And nowhere is a

knowledge of natural science so much a necessity as on this coast, where the mineral interests are so vast, and where nature itself requires such new study and classification. If the future College of California can indeed be the center of all studies and collections bearing on the natural history of the Pacific Coast, it will be an invaluable institution; but all that is, as yet, only in design. I was pleased to see that men of all sects and no sect, were upon the Board of Trustees, so as to make it a truly unsectarian College.

A bill, however, (in 1868) has been presented to the State Legislature, which will probably merge the College into a larger Institution or University.

The following is an analysis of the bill:

"It provides for a State College of Agriculture, a State College of Mechanic Arts, a State College of Mines, a State College of Civil Engineering, and such other Colleges of Arts as the Board of Regents may establish. A State College of Letters, College of Medicine, Law, and other professional colleges. These are all to be grouped together, under the head of a State University. The foundations have been laid, in this proposed organic act, to furnish instruction in every branch of human knowledge, which, in the judgment of the most enlightened educators, has any practical value. It is a broad educational foundation, not only for the present, but for the future—for the time, not very remote, when the Pacific slope will have many millions of population, and when hundreds of youths will flock to this University for instruction, which, while it is ultimately as free as air, shall be more precious than gold.

"The first in the order of establishment is the Agricultural College. But in consideration of the donation made to the State by the College of California, the Board of Regents are required to organize a College of Letters, in connection with the University, as soon as practicable, and when this is done, the College of California will disincorporate, and after paying all debts, will turn over the remaining property to the University.

"Provision is also made by which other colleges, now or hereafter established, may be affiliated with the University, so that students can be received from them, and upon examination, degrees conferred for proficiency in either general or special branches of learning. But colleges so affiliated may retain their own property, while the President of the University is to be a member *ex-officio* of the faculties of all such affiliated colleges. In this way, any college can have a relation to the University, while it is left to manage its own affairs, so far as its separate existence is concerned. Special provision is also made to bestow scholarships, free from ordinary charges, upon such scholars in the public schools of the State, as shall distinguish themselves by study, and shall have passed the requisite examinations. In brief, the University is to open its doors as wide as possible to every youth who wants more education than the Common School can afford. It conducts him to any one, or all of the departments of practical science, as well as the *belles lettres*, and invites him to make the most of the greatest advantages at the least possible cost. The

bill is utterly free from the taint of a narrow provincialism. It is cosmopolitan, and just and liberal in all its provisions. The government of the University is to be by a Board of Regents, which is to consist of twenty-two members, and to include the Governor of the State, Lieutenant-Governor, Speaker of the Assembly, the State Superintendent of Public Instruction, the President of the State Agricultural Society, and the President of the Mechanics' Institute of this city. Eight other members are to be nominated by the Governor, and eight additional honorary members are to be chosen by the appointed members.

"The endowment proposed for the support of the University is the capital and interest accruing from the sale of seventy-two sections of land, heretofore granted to the State by Congress, and known as the 'Seminary Grant,' and from the sale of ten sections granted to the State for public buildings; the avails and income from 150,000 acres of land, heretofore granted to the State for the benefit of 'Agriculture and the Mechanic Arts;' and all contributions hereafter to be made by the State, or from the funds of private individuals.

"The donation which the College of California has already made, is now, in the opinion of good judges, equivalent to $100,000; and the property, which the College proposes to turn over at a future day, may be set down at $50,000. It is expected that the State will match this donation, which is, thus far, the largest ever made for education on the Pacific coast, by an appropriation of $100,000 to furnish the buildings

necessary to put the University in operation with as little delay as possible."

On a recent voyage of the *Great Republic* to Japan, Mr. ALLAN MCLANE took over a proposition to the Tycoon, from the Board of the College of California, to educate nine or ten young Japanese scholars in the English language and history, so as to promote a commercial and popular union between the two countries. The students will be conveyed both ways, free of charge, by the Pacific Mail Company, and will be especially and gratuitously instructed in the College, and separate quarters will be furnished them, if desired. This idea originated with Mr. MCLANE, and bears the marks of his far-reaching and organizing brain.

The results of an educated body of men growing up in Japan, and acquainted thoroughly with the American language and affairs, could hardly be measured in their effects on the commercial interests of the country, or the progress of civilization and Christianity.

CHAPTER XIII.

THE FOOT HILLS—GOLD-MINING.

It is a sad pity to see the beautiful rivers of California so spoiled by the gold-washings from above. The Sacramento is yellow with the sand from these works in the mountains, and the fine salmon which used to fill its streams, are being driven away each year. In a short time, unless efficient measures are taken to preserve the fish, the rivers of the State will be stripped of a most valuable product, as similar streams have been in New England. The sea-fish of San Francisco, however, are abundant, and of many new and remarkably fine varieties.

The mining in the Foot Hills is producing another remarkable effect; it is driving out the farmers from the river-bottoms to the elevated land. These "flats" were always subject to periodical overflows, but, as the floods seldom reached beyond a well-known limit, and as they deposited fertilizing sediment, the cultivators could adapt themselves to them, and found their advantage in them. But since the enormous hydraulic washings in the Foot Hills, or the Sierras, this has all been changed, on account of the filling up of the mountain streams with gravel and soil. In many of these streams, whole hills have been "sluiced" away, and have filled up the rivers from twenty to forty feet.

When the winter floods come, they pour down these channels, and carry the soil and gravel to the valley streams, filling them up to the brim, causing floods, and thus burying thousands of acres of most valuable land every year, under this sandy and pebbly deposit. I heard of one instance, in Yuba County, of an orchard of seventy-five acres, worth from $50,000 to $75,000, thus completely destroyed; and of many similar cases of smaller vineyards and farms.

The following, from the *Alta* newspaper, will illustrate this destructive action of man on nature:

"Marysville, once the best-built and neatest inland town of our State, with a flourishing commerce, has been retrograding for some years past, from changes incident to California. The best paying orchard of the State was BRIGGS'. This consisted of ninety acres of assorted fruit trees, on rich, sandy loam, kept moist by infiltration from the river. The fruit of this orchard was the earliest to reach the market, and, until prices fell to their present level, it paid well to send it to San Francisco, even at heavy cost of steamboat freight. What has become of this celebrated orchard, which was valued at $200,000? It is now a willow copse! Its trees, which were so beautiful and so fragrant in full flower of Spring time, and whose rich show of fruit, always heavy laden, was the greatest attraction on the highway, now gladden the eye no more, forever! In its place stands a wilderness of rank willows, overtopping its former wealth of fruit trees, and blotting out the record of their history.

"Dr. TEEGARDEN'S rich and beautiful orchard of forty acres, in nearer proximity to town, has shared the same fate, and BRIGGS' second orchard of 200 acres is fast following it. Nearly all that exceedingly fertile bottom-land that lined the banks of the Yuba for miles above, is also forever blotted out, and the work of devastation still advances along the bottoms of the Feather river, below the confluence of the Yuba. In time not distant, the whole of those rich, dark-soiled bottom-lands will be one barren waste of sand. This sad change is but a type of the utter desolation that has already ruined the bottom-lands everywhere along the streams that come from the gold mines.

"Every year, millions of tons of earth, gravel, and sand are sent down the rivers that go from the mines toward the plains below. Every year there is added so much to the channels of deposition, that the beds of the streams are elevated, and their waters spread more and more over the alluvial bottom-lands, and bury them under barren sands beyond redemption.

"Let it be understood that these rich lands count their acres by thousands upon thousands; that they are smothered under from five to twenty feet of barren sand, and the eternity of their extinction from the wealth of the State will be comprehended. The Sacramento river, though further removed and broader in its base, is not less notably being uplifted, and year by year its ever-muddy waters are spreading over the flat and marshy lands on its borders.

"The greater part of this destruction comes from what are called hydraulic diggings. These are the richest lands for tillage in the undulant country of the gold ranges. They have a substratum of gravel which contains grains of native gold. To get a cheap separation of the gold from the gravel it is necessary to tear down the low elevations, varying from 500 to 200 feet, with the whole covering of rich top-soil, with the gardens and orchards, houses and fences that are on them. The dry gold is found to be there, the farm is devoured, and in an incredibly short time, the piping water-jets, under a pressure of 100 or 200 feet, have torn away the gracefully swelling landscape of 200 or 300 ornate acres, and left in its place a pond of dirty water, with a broad border of huge boulders of rock, with cobble stones and barren gravel—a picture of utter ruin. The devastation could not be more complete if it were the last day, and the demons of destruction had been let loose to desolate the earth, that not a green thing should grow on it thereafter, forever! The price of this awful ruin is probably some ten or twelve millions of gold dollars per annum, the product of this particular form of mining. It brings, for the present, a large equivalent for the sacrifice of the fine vineyard and orchard land it abstracts from the food-producing capacity of the State. But in the end it may be regarded as a poor compensation. The gold passes away, while the land, with the wealthy homes it has ruined, would have endured from generation to generation."

"GOLD RUN."

I had no idea till I stopped at this place, what hydraulic washing was, on a large scale. Here was a

valley, of whose dimensions I cannot be certain, but from half to three quarters of a mile long, by a quarter broad, and some 250 feet deep, scooped out entirely by the miners' hydraulic pipe.

Two or three men stood at the base of a great wall of earth and rock, and with heavy waterpipes, supported on wooden frames, but guided by the miner, they speedily undermined the mountain-side (much to their own risk) and sent it floating down their sluices into the valley below. The whole vast ravine thus hollowed out by the little human ants, was evidently the bed of an ancient river, filled with sand and pebbles and petrified trunks, and here the modern miner gathers the washings of ancient streams long since passed away.

The iron pipe through which this tremendous force was exerted, was 800 feet long, with only a 2-inch nozzle and a pressure of 206 feet.

The *débris* was carried like a torrent through an alternate series of "sluices, and ground-races, and falls" for miles below, crushing the dirt thoroughly. Even as I stood watching the work, the hill melted like snow under this mighty agency.

The channel of one ancient river, well known to the miners as the "*Blue Lead*," has been explored for at least twenty-five miles from Sebastopol, in the northern part of Sierra County, to Snow Point, in Nevada County, and probably over this county also. It runs nearly at right angles to the present rivers, and its channel must have been filled by gradual and repeated overflows of lava, and changed by many volcanic upheavals.

GRASS VALLEY.

Like many travelers, I have had serious doubts whether gold-mining, during the last ten years, had been a source of much real profit to California, except in attracting labor, and I have taken pains to inquire of all my acquaintances if they could point out persons to me who had made and *kept* fortunes from gold-mining. As a general thing, they have admitted that they themselves, and their intimate friends, have been exceptions, but the almost universal reply is, "There is Mr. Hayward in the Eureka mine, and look at Grass Valley, if you want to see profits!"

It is a fact that gold-mining in the Eureka mine, and in Grass Valley, and the northern counties, has passed through its adventurous and uncertain period, and is now carried on more like other branches of business. Its profits are not made from sudden and brilliant "finds," but by reducing the expenses of working, and trusting to a regular and economical production. The Eureka mine, Grass Valley, is an instance. When this vein was first worked to a depth of about 34 feet below the surface, the yield of the quartz was from $6 to $12 a ton, which did little more than pay expenses.* Below that level, the yield increased from $14 to $21; at 100 feet, it paid $28; at 200, about $37, and at 300 feet, the yield has been over $60 per ton.

"During the four months which preceded the first of October, the mine produced 42,227¾ tons of quartz, which yielded $255,072.55, and the expenses of mining and milling were $67,320.83, leaving as profit, $177,751.72. The average yield of the quartz during the period was at the rate of $60.33 per ton. During the whole year the amount of quartz worked was 11,375¾ tons, which produced $526,431.41 at

* J. Ross Browne's report for 1867-'68.

an expense of $168,389.23, leaving as profit for the whole year $368,042.19. The average yield per ton was $47.15, and the average cost of mining and milling was $13.75, leaving a profit of $33.40 per ton." (J. Ross Browne.)

Mr. Hayward is said to have made his enormous fortune by a common-sense management of his mine, as he would manage any other business.

His celebrated mine is at Sutter Creek, Amador County. Its average yield is not high: it has been worked since 1851, though only during the last eight years attaining much importance. It has produced altogether about $6,000,000. The yield per ton is only about $25. The vein at the depth of 1,200 feet is about 25 feet broad. It is the deepest mine in the State.

The veins in Grass Valley are noted for their narrowness and the richness of the quartz. They are incased in a hard metamorphic rock, and the expenses of reduction are higher than elsewhere in California, amounting to from $15 to $26 per ton.* Within the last fourteen years, the total production from the Grass Valley district has not been far from $23,000,000.* Its annual yield now is about $3,500,000; 2,000 laborers being employed, and producing an average yield of some $1,750: the average yield of the rock being from $30 to $35 per ton.

A single vein, with an average width of 12 to 14 inches, on Massachusetts and Gold Hill, has produced, during that time, more than $7,000,000 worth of gold.

More experiments in different processes of extracting the gold have been made here than anywhere else in the State.

* J. Ross Browne.

GOLD-MINING.

It must not be supposed that there is any one district on the Pacific coast which is exclusively a mining region. From the borders of Mexico to Alaska, and from the waters of the Missouri to the Coast Range, there are innumerable mining works in gold and silver, most of whose product comes out to the world by San Francisco—a yield said to be more than half the whole product of the world.

There has no doubt been a large development to the mining interest in the last four years. Among the causes of this, has been the granting titles to mines by the Federal Government. Capital, of course, is more disposed to invest when a title to property is thus secured. Expenses, too, have diminished. Miners' wages now average $3 a day, while they used to be $4; mills charge 20 per cent. less for working, and guarantee 75 per cent. returns on the fire assay, where a year ago they would only guarantee 60 per cent. The cost of assaying and refining bullion has been reduced within a year some 50 per cent.* No one not familiar with the business can imagine the extent of the losses through incompetent refining.

"A striking illustration of the waste of bullion was recently presented in Virginia City, Nevada, where an assay office, which had done considerable business for a couple of years, was closed up for want of patrons, when parties who had watched the method of business of the firm obtained permission to test the dust in the furnace flue, and waste about the laboratory,†

*† Commercial and Mining Review.

and obtained $900 worth of bullion. The most suggestive fact connected with the transaction being, that while the bullion melted by the establishment never exceeded $2 per ounce in value, that collected from the flue was worth $2.50 per ounce; it had gained 25 per cent. by the loss of the silver, which, it is well known, vaporizes at a lower temperature than gold."

It is estimated, too, that nearly 20 per cent. of the bullion received in San Francisco is derived now from the sulphurets and tailings, which, a few years ago, would have been thrown away. In one mine in Grass Valley, the past year, thousands of tons of old rubbish have been worked over, yielding an average of $15 per ton. It is said that, in over a dozen establishments in the State, the yield from sulphurets, reduced by chlorination or other process, is from $100 to $300 per ton. These formerly were considered of no value.

The three great branches of mining, as is well known, are, (1.) *Quartz;* (2.) *Cement;* (3.) *Placer Mining.* Some of the quartz-mining is now at great depth, and the yield is still found profitable. These "quartz-mines," however, are not always in quartz. One profitable mine near Lincoln, Placer County, is said to be in a hill of silicate of magnesia. Rich auriferous sulphurets, too, are said to be found in slate, limestone, and cemented gravel, as well as quartz. Of quartz mills, there are reported to be nearly 400, with 4,000 stamps, in California alone. Nevada County was formerly the great quartz-mining county, but many other counties, such as El Dorado, Placer, Plu-

mas, Yuba, &c., are now discovered to be equally rich. The names are often striking: Poverty Ledge, Poor Man's Hill, Whiskey Diggings, Brandy City, Grizzly Flat, You Bet, etc.

One stroke of good fortune in quartz mining, is related by an authentic witness* this year:—

"A miner, named Johnson, discovered a ledge of decomposed quartz near Paulineville, Yuba county, in March, from which he obtained $10,000, with a rocker, in a few hours, and $10,000 more from two hundred pounds of the rock which he carried to Marysville, and he has since sold his mine for a very handsome fortune."

The produce of the quartz mines, in 1868, was about $9,000,000.

CEMENT MINING.

"Cement" is a very tough clay, enclosing gravel and boulders. The gravel is not auriferous, but it must be crushed, so as to permit the crushing of the clay. All the *power* spent in crushing the stones is lost. One stamp will crush from 4 to 6 tons of cement per day. The pulverization is not so fine as of quartz.

The particles of clay that escape are easily dissolved in water. The gold is caught in the battery, and that which escapes through the screen is caught in the sluice.†

These hills of cement are very frequently covered with basalt or volcanic rock, showing that the currents of lava often follow the beds of the streams,

* Comm. Review.
† Browne's Report.

and the gravel is thus protected from the denudation which lays bare the surrounding country. It is almost always assumed now among miners, that a tunnel cut into a basalt-covered hill will reach the bed of an ancient river. *

Nearly one-half of the gold found in the State is extracted from these beds of ancient rivers.

It is said that there are several hundred miles of this cement in the State, "ranging from one thousand feet to several miles wide, and from one hundred to one thousand feet deep, all of which is rich in gold." On this hard material, water and the tremendous hydraulic process has no more effect than on granite. There are now nearly 100 mills † in the State, engaged in crushing cement, and yielding much more profit than the quartz mills. Placer, Nevada, and Yuba Counties are the centers of this branch."

"‡ The American mine at Manzanita Hill, North San Juan, Nevada County, for the past three years, has yielded a revenue of $105,000 annually, among its eight owners, who have ground enough in their claim, of the same character, to last for forty years, if worked at the same rate as during the past three. Smartsville and Timbuctoo, in Yuba County, are famous for their cement claims. The cement here is less hard than in Nevada County, and is worked to a great extent by the hydraulic process. The Blue Gravel claim at Smartsville is a specimen of the mines in Yuba. This claim contains upwards of one hundred

* Browne's Report. †‡ Comm. Review.

acres, averaging one hundred feet from surface to bed rock. Upwards of $1,000,000 have been taken from it, though it was not opened till March, 1864. It occupied nine years of incessant labor and the expenditure of upwards of $100,000 to open it. It has four miles of sluices, three feet wide and three feet deep, in which three tons of quicksilver are distributed to catch the Gold. 125,000 pounds of gunpowder are annually expended in blowing up, and breaking the cement where it is too hard for the hydraulic to wash. The water used in washing costs $25,000 per annum. It is this heavy outlay in opening these claims that has been the great obstacle to their development. Capitalists are now largely interested in this business. The second largest individual income in the State, during the last year, was obtained by Mr. J. P. PIERCE, one of the owners in the Blue Gravel claim, who paid taxes on an income of $102,000. Several other parties interested in the mines of Yuba paid taxes on incomes of from $12,000 to $60,000."

The yield from cement-mining or deep lying placers last year, was $14,000,000.

PLACER-MINING.

This form of mining is decreasing every year, while quartz-mining slowly increases. Most of the surface gold is now obtained by hydraulic mining. The yield in some claims, is as large as $100 per day to the hand, but it does not average more than $10 or $15. The river mining is now mainly done by Chinese, who

glean from the sands over and over again, after the whites have abandoned them.

"The following is the produce of two successful placer-operations in the Live Oak and Nebraska mines, in Nevada County. These claims were located in 1852, and have been worked continuously ever since. Before the hydraulic process was introduced, $250,000 per annum were taken out by means of drifting on the bed rock, hoisting the dirt with a windlass, and washing it in sluices. From November, 1853, to June, 1860, the Nebraska Company extracted $353,000; since then upwards of $250,000 more have been obtained. The three claims in the vicinity have taken out $1,218,000. Four other companies adjoining, on the same "lead," have taken out upwards of $2,000,000. Other smaller companies, working over the same materials, have obtained upwards of another million of dollars, and all from less than 4,000 feet, on a lead which is known to extend for ten or fifteen miles."

As old fields are abandoned in placer-mining, new ones are found. It is the branch of mining least beneficial to the country. Its produce last year was about $2,000,000.

GOLD MINING PROCESSES.

The main processes of quartz-mining are well known. Crushing and amalgamation are the two great methods of reducing the ores.

Most of the crushing is done with stamps. The stamp is usually a block of iron, weighing from 300 to 1500 pounds, fastened to a wooden or iron shaft. A battery consists of several stamps standing side by side.

"*The stamps are successively lifted by machinery, and then allowed to fall on the quartz The height to which they are raised is from ten to fifteen inches, and each stamp falls from forty to eighty times in a minute. It is calculated that each stamp should crush a ton of quartz of ordinary quality in twenty-four hours. The mills

* J. Ross Browne.

usually run night and day. Of course the amount of quartz crushed depends to a considerable extent on the hardness of the rock, the weight of the stamp, height of the fall, and the rapidity of the blows.

"The fineness to which the rock must be pulverized depends on circumstances. The particles of gold may be very fine, so that the quartz must be reduced to an impalpable powder before they can be liberated; but if the particles of gold and the grain of the rock are coarse, or if the pulp is to go through a grinding-pan, the quartz may be allowed to escape when many of the particles are as coarse as sea-sand or even coarser. The battery has on one side a screen of wire-cloth or perforated sheet iron, with apertures of the size of the largest particles that must be permitted to escape. A steady current of water runs through the battery, so as to carry away the quartz dust as soon as it is fine enough. The sheet-iron screens are punched with needles and are known by the numbers. No. 7 screen is punched with a cambric-needle. No. 3 with a darning-needle. In Grass Valley most of the mills use Nos. 3 and 4 screens; elsewhere Nos. 4 and 5 and 6 are preferred."

"AMALGAMATION OF GOLD."

"Much of the gold is caught or amalgamated in the battery. The stamps fall into an iron box or mortar, into which an ounce of quicksilver is thrown for every ounce of gold supposed to be in the quartz. If the rock is crushed fine in the battery, two-thirds or three-fourths of all the gold saved may be caught there, leaving one-third or one-fourth that escapes through the screen. After leaving the battery, the pulverized quartz in most mills runs down over copper plate which has been washed over with diluted nitric acid, and then rubbed with quicksilver till the whole surface is covered with amalgam: and when the plate is covered with gold it operates far more effectually than when the quicksilver is fresh. Gold unites more readily with gold amalgam than with pure quicksilver. The copper plate, which is the bottom of a trough or sluice, may be fifty or a hundred feet long.

"Between the copper plates in many mills are troughs, in the bottom of which are laid coarse blankets, or gunny bag, or even cowhide with the hair on and the grain against the stream. Gold amalgam and sulphurets are caught in the rough surface of the blanket, gunny sack, or hide, which must be taken up and washed at intervals, which are usually not more than half an hour long. The shaking table used in amalgamation is a long box with transverse divisions containing quicksilver. It is set horizontally and is shaken longitudinally, re-

ceiving from 100 to 200 short jerks in a minute. By these jerks the pulp is thrown back upon the quicksilver.

"Pans are coming into use slowly in the gold quartz mills—at least in some of the new ones lately erected in Grass Valley. Kustel says of pan amalgamation that it is 'at present the most perfect gold manipulation,' and by it 'gold is extracted as close as ninety-five per cent. of the fire assay'—that is, if there are no sulphurets. (Nevada and California processes, page 63.) The general opinion is that from twenty to forty per cent. of the gold is lost in the ordinary processes."

MINING TRICKS AND FAILURES.

The extent to which both eastern and San Franciscan investors have been deluded and cheated in California mines, could not be imagined by any one not familiar with the facts. Take this instance of "salting," which I have from the scientific gentleman employed. An ardent mercantile man from Buffalo, New York, was visiting a mine in the Foot Hills, offerred for sale cheap, and chanced to pick up some specimens of ore, scattered about. He had them assayed, and they showed a remarkable proportion of gold. Not betraying the hidden treasure thus luckily found, he went back to Buffalo, and informed his confiding friends. The demonstration was complete. Here was an average specimen of the ore; it yielded $100 a ton, and cost $25 to work; and they could take out 10 tons a day—$5,000 in a week—the whole mine only costing $60,000: "in twelve weeks you can clear your capital!" The sixty thousand were speedily subscribed, and the mine was bought, the investors waiting eagerly for their golden egg to hatch. It chanced, however, that now the originator met my friend and

showed him his specimen ores. "But these do not seem to belong to that formation!" said my young *savant.* The speculator was frightened; he engaged my friend for $500 to go right up and examine, and report. If he had reported favorably, he would undoubtedly have received several thousand dollars from the stockholders. But he was obliged to inform the astounded Company that the mine was *salted! (i. e.* that those interesting and valuable specimens had been brought from some other quarter and dropped in) and that it was not worth working.

A gentleman interested, gave me another incident of a similar nature. Some commercial men in London became interested in the glowing accounts of a Californian, of a celebrated gold mine in the Sierras. His specimen ores were astonishingly rich, and the whole investment appeared a very promising one. Their information, however, was not sufficiently trustworthy, and they held off. The Californian went to the Continent, leaving a telegraph address. In the mean time some of these gentlemen happened, at one of their places of daily resort, to meet another American, also from California. They fell into a conversation with him; had he ever been in Nevada County? Oh, yes, he had *slept over* every yard of it! Did he ever hear of the Golconda mine? Certainly; know it well! Well, what did he think of it? The stranger, as a man accustomed to judge, replied carefully with caution.—They pressed him.—He inquired the price set on it. "Two hundred thousand dollars." He shook his head distrustfully; then described the mine,

and what he knew of its product. It was a fair mine, but not worth more than half that money. In fact, he knew that the company had received an offer of that amount and might at any moment sell it. They must work rapidly to secure it. The Englishmen resolved to try for it. They telegraphed to the Californian. He returned. They offered him $100,000, provided everything should appear all right on investigation. He would not secure the purchase to them without $10,000 down. So eager were they, that they were about paying him this amount, until their lawyer suggested that the title should be first investigated. An agent was accordingly sent to California, who went out to the mine. He not only discovered no title, "but not even a claim or a digging," and his employers escaped with a couple of thousands loss.

"Scientific Reports" smell in the nostrils now of Californians. So many magnificent mines and rich veins are dished up annually in such splendid style on paper, which are never found to pay a penny to the investor, that a good report of a *savant* is about the last thing the knowing speculators look to. Scientific superintendents, too, are no better thought of. Skill and training in the East, they say, are no preparation for practical mining on this coast. I heard of one graduate of a mining school, who imported and carted up to his mine a new and improved piece of machinery, at a cost of some $20,000, and when it reached there, it was discovered to be too large for the shaft, so that to get it into the mine, the whole entrance must be enlarged, at an expense of some $50,000.

The result was, that the valuable machinery was left outside, and finally broken up for old iron. The amount of useless "prospecting" done by Eastern engineers, at enormous expense, can only be measured by the losses of Wall street and Montgomery street in gold-mining stocks. Nor have the "practical men" of California done any better: as witness the large sums spent uselessly near the San Carlos mine, in mistaking chromic iron for silver ore, or in mining for tin south of Los Angeles, or digging for petroleum near Santa Barbara — though in this last blunder, science also must take its share of blame.

I never yet met any business man in California who had not lost money in mining, and I heard of but very few fortunes which had been made and *kept* in this business. Still, gold and silver mining has built up this coast with towns and villages, and has served to develop an amazing agriculture in a country which otherwise would have been as little known or explored as Arizona. It has certainly "paid" to this region, whether it has to the lenders of capital in the East or not.

California herself shows all the signs of prosperity. Wages are high, means of living not very expensive, and the interest on capital moderate. Individuals live in much comfort and abundance, and the working-classes are in better condition than anywhere else in the world. Before the last five years, this prosperity must have arisen largely from the profits in mining. Still, population has not increased rapidly, very many

having returned who had failed in business; the wage-fund may have come largely in borrowed capital from the East, and the high wages and high interest (which prevailed a few years since) may have partly depended on the gambling *expectation of profit*, which gold-mining induces. No one can say what losses Eastern investors, and disappointed and unlucky miners have incurred; so that it is extremely difficult to decide how much it has cost to extract the *nine hundred millions of dollars* which are believed to have been taken from the mines of California since 1848. This enormous yield has affected the value of gold throughout the world, and has been a great aid in our exchanges; but what profit (if any) has accrued from it, over and above what would have arisen from the application of the same labor and capital to the wheat-fields of the Central West, is exceedingly difficult to estimate.

The quantity obtained each year from surface-diggings in California is estimated at $2,000,000; from cement or deep-lying placers, $14,000,000; from quartz-mines, $9,000,000; total, $25,000,000.

Mr. Browne, in his report for 1867, thus reckons the

GOLD AND SILVER PRODUCT FOR 1867.

"From the best information available, the following is a near approximation to our total gold and silver product for the year ending January 1, 1867:

California	$25,000,000
Nevada	20,000,000
Montana	12,000,000

Oregon	$2,000,000
Colorado	2,500,000
New Mexico	500,000
Arizona	500,000
Add for bullion derived from unknown sources within our States and Territories, unaccounted for by Assessors and Express Companies, etc.	5,000,000
Total product of the United States	$75,000,000

PRODUCT OF THE PACIFIC STATES AND TERRITORIES.

"The bullion product of Washington is estimated by the Surveyor-General at $1,500,000. That of Oregon is stated as high as $2,500,000. Intelligent residents of Idaho and Montana represent that the figures given in the above estimate, so far as these Territories are concerned, are entirely too low, and might be doubled without exceeding the truth. The product of Idaho alone, for this year, is said to be from $15,000,000 to $18,000,000. That of Montana is estimated by the Surveyor-General at $20,000,000. Similar exceptions are taken to the estimates of Colorado, New Mexico, and Arizona. As I have no grounds for accepting those statements, beyond the assertion that most of the bullion is carried away in the pockets of the miners, I am inclined to rely upon the returns of the assessors, express companies, and official tables of export. Admitting that a fraction over seven per cent may have escaped, although reasonable allowance is made for this in the estimate of $70,000,000, and that a considerable sum may be derived from sources not enumerated, I feel confident the additional allowance of $5,000,000 is sufficient to cover the entire bullion product of the United States for the year 1867, thus making the aggregate from all sources $75,000,000, as stated in the Report of the Secretary of the Treasury.

"I have endeavored to obtain returns of the annual product of each State and Territory since 1848, but for the reasons already stated, and in absence of the reliable statistics, it has been impossible to make the necessary divisions with more than approximate accuracy. As nearly as I can judge from the imperfect returns available, the following, in round numbers, is not far from the total product:

California	$900,000,000
Nevada	90,000,000

Montana	65,000,000
Idaho	45,000,000
Washington	10,000,000
Colorado	20,000,000
New Mexico and Arizona	25,000,000
In jewelry, plate, spoons, etc., and retained for circulation on Pacific coast	45,000,000
Add for amounts buried or concealed, and amounts from unenumerated sources, and of which no account may have been taken	50,000,000
Total	$1,255,000,000

"This statement requires explanation. Up to 1855, a considerable portion of the gold taken from California was not manifested. In 1849, the actual yield was probably $10,000,000; in 1850, $35,000,000; in 1851, $46,000,000; in 1852, $50,000,000; in 1853, $60,000,000; and in 1854, $53,000,000. The amount unaccounted for by manifest was not so great after the last date. In 1861, Nevada and Idaho commenced adding their treasures to the shipments, so that after that date, a deduction for the amounts produced from these sources would be necessary, if the manifests alone were taken as a criterion, in order to arrive at the product of California. An addition should be made for the amount retained for currency, estimated by some as high as $45,000,000; but probably not exceeding $35,000,000 or $40,000,000; and, for plate, jewelry, etc., of California gold, $2,000,000, and Nevada silver, $3,000,000. Incorporated in these shipments are the amounts received from Nevada, Idaho, Oregon, Arizona, Washington, and British Columbia; but these cannot be deducted from the manifest of Exports, according to the Express returns, since the proportions are not accurately known of the amounts retained and shipped, derived from separate sources.

THE EXPORTATION OF TREASURE FROM CALIFORNIA.

"The following table shows the amount of treasure manifested for exportation from San Francisco:

YEAR.	AMOUNT.
1849	$4,921,250
1850	27,676,346
1851	42,582,695
1852	46,588,434
1853	57,330,034
1854	51,323,653
1855	45,182,631
1856	48,880.543
1857	48,976,697
1858	47,548,025
1859	47,649,462
1860	42,203 345
1861	40,639,080
1862	42,561,761
1863	46,071,920
1864	55,707,201
1865	44,984,546
Total	$740,832,623

COMPARISION OF RECEIPTS AND EXPORTS.

"The following figures show the exports, the receipts, and the difference between exports and receipts for the last five years:

Years.	Exports.	Receipts.	Difference.
1861	$40,639,080	$43,391,760	$2,752,686 gain
1862	42,561,761	49,375,462	6,813,701 "
1863	46,071,920	52,953,961	6,382,041 "
1864	55,707,201	55,223,407	473,794 loss.
1865	44,984,546	55,467,593	10,482,947 gain.

The Northern Mines.—The production from these mines is steadily increasing; being in 1862, $30,948,-369; in 1864, $34,782,312; in 1865, $36,649,337.

These mines, it should be remembered, are in the counties north of Stockton.

CHAPTER XIV.

THE PACIFIC RAILROAD AND VIRGINIA CITY.

THE work accomplished by the Pacific Railroad in crossing the Sierras, is one of the marvels of the world in engineering skill. The only enterprise approaching it, is the railroad opened by the Austrian Government over the Brenner Pass in Tyrol, connecting Innspruck and Botzen. The American road makes a steady ascent for ninety miles from Sacramento to Cisco, its present terminus, where it reaches an altitude of 5,911 feet; as it crosses the summit it is 7,042 feet above the level of the sea. During this ascent it crosses enormous ravines on trestle-work, winding in sharp curves around the mountain-side, where you look down into cañons thousands of feet below you, or through long mountain valleys filled with pine forests, and gradually climb, by many a grade and curve, grand peaks so high that the snow lies in summer on the summits. The motion is slow and careful, and as the course is often directly the reverse of the main direction, the traveler has abundant opportunity of studying the landscape, and enjoying the novel sensation of climbing the American Alps on a railway car. Sometimes the track is cut in the solid rock, sometimes supported by huge piles of masonry, again penetrating in dark tunnels the rocky

mountain-side. Frequently for miles it is covered with snow-roofs made of heavy timber; indeed, it is said that forty miles of these roofs must be made before the road will be safe from avalanches and snow-drifts. The famous tunnel (some 1,700 feet long) at the summit is finished, and there is a good deal done on the further side, as we saw grading work going on, with little bevies of Chinese, far up on the mountain sides for miles beyond. On these alpine summits the snow is the great enemy. It piles and drifts here forty feet deep. The precipitation of the Sierras is mainly snow, and there are points where, as near Donner Lake, the fall of snow is some years 60 feet deep. This fact, and the accumulation of snow on the Rocky Mountains, will always make this route dangerous and liable to delays. To have a train snowed up in this desolate region, 200 miles from any inhabited district, would be no joke. But when the road is fairly finished over the Sierras, it will give the grandest journey which can be taken on this continent. It is like traveling by steam over the passes of the Alps, and travelers will come from far and near to enjoy the magnificent scenery of the Sierra Nevada in the comfortable railway car. As we cross the summit, the eye traverses a vast landscape of barren mountain peaks with enormous bare valleys between, and beyond, the snowy summits of the peaks near Carson River—a scene of grandeur and desolation, in which it would seem impossible that a work like a railroad could be constructed. And far beyond the region which the eye can reach, lies a country even yet more difficult and inhos-

pitable, where the real difficulties of the Pacific Road commence—the fearful wilderness and desert between the Sierras and Salt Lake, where for five hundred, perhaps seven hundred miles, not a tree of timber or a piece of firewood can be obtained. There, every stick of fuel, every railroad tie, and beam for trestle-work, must be carried on construction-trains from these mountains. If my readers will fancy building a railway in Ohio, and supplying it with fuel from New-York, they will understand the difficulties which lie before this road. Great depots of wood will have to be made at various points in the desert, and immense construction-trains employed. The difficulty of water, too, is an immense one. In many places, even Artesian wells, such is the position of the strata, will not bring water; and when it comes, it will be so alkaline as to impede the production of steam. The question of questions for the Pacific Road is, "Can coal be found near the track?" With good anthracite coal discovered anywhere convenient to their line they have solved the problem. There is no prospect of it near the Sierras, but it is confidently believed that near Denver, or between that point and Salt Lake good coal exists. This fact is to be settled by an important geological commission, now engaged under authority of Congress in investigating the whole region near the 40th parallel of latitude, under the direction of Mr. CLARENCE KING. With coal even 250 miles away, they can manage the question of fuel. Whatever energy and capital can accomplish, will be done by the Board of Direction in California, who have shown

a remarkable activity and business skill in their operations. The cost of the road, and the great expense of running it, will always be an obstacle to cheap freights or low fares. Men experienced in these matters doubt if they ever carry freights of importance from one coast to the other, except the lightest and most valuable. But they will create a large local traffic, and find their great profits from way-business. There must be a great deal also of through travel, both for pleasure and business. When our pleasure-seekers on the Eastern coast can reach in a week such objects of wonderful grandeur and beauty as the Yosemite, Lake Tahoe, and the high Sierras, there will be crowds taking their summer trip hither. This region will become our American Switzerland.

In the Annual Report for 1868, of the Secretary of the Interior a statement is submitted from Mr. Williams, one of the Government Directors, as to the cost of the Union Pacific Road, which is authentic.

Assuming that the two companies, the Union Pacific and Central Pacific, meet near the northern extreme of Salt Lake, the total length of line built by the former, the eastern company, will be 1,110 miles; and the estimated expense, including telegraph, equipment, track-laying, bridging and everything, is $38,524,801, or $34,917 a mile, or omitting what is not fairly chargeable on the track-superstructure, about $27,000 per mile. To meet this, the following will be their assets:

For 1,110 miles of the road, the cash value of the Government bonds and the company's first mortgage

bonds, for which this subsidy forms the basis, may be estimated as follows:

United States bonds from Omaha to the eastern base of the Rocky Mountains; Black Hill Range, as fixed by the President, 526 miles, at $16,000	$8,416,000
United States bonds thence for 150 miles, at $48,000	7,200,000
United States bonds for the remainder of 1,110 miles, being 434 miles, at $32,000	13,888,000
Total United States bonds bearing 6 per cent. in currency	$29,504,000
Average per mile	26,580

The company, as the road progresses, issues its own first mortgage bonds to the same amount. These six per cent. thirty-year bonds, principal and interest payable in coin, are a prior lien to that of the Government.

Estimating the Government bonds at par, and the company's first mortgage bonds at 92 per cent. over all expense of agencies and commissions, the total cash proceeds amount to $56,647,680, averaging per mile, $51,034.

The lands granted by Congress, whatever may be their value, is a further bestowment from the Government.

The great routes between the eastern coast and the Pacific, will be ultimately, we believe, the Southern Pacific, through Texas, and the Northern, connecting Lake Superior with Puget's Sound. On neither of

these would snow be an obstacle, and the Northern will pass through a region destined to be of great value in the distant future, while the country between the Rocky Mountains and the Sierras must always, with the exception of a few districts, be an inhospitable wilderness.

The present Pacific roads have chosen the worst isothermals in the United States for their route, and for a part, the most desolate and barren desert. They will, however, always feed and supply the mining regions.

The Wells & Fargo Express are doing their best to fill up the gap of railroad in the midst of the continent. The arrangements bear the stamp of the same organizing brains which have made the Pacific mail organization what it is. At the terminus, coaches met the passengers, each coach well made and comfortable, with six horses, evidently picked Morgans. Fifteen passengers were put on a coach, and then, with most skillful drivers, we bowled along over an excellent road, well watered, and beneath pine trees, down the mountain at the rate of from ten to twelve miles an hour; changing teams every ten miles. There were no ruts, and no dust troubled us. I have seen no such coaching since years ago in Old England. With an outside seat, and in the midst of the Alpine scenery, it was the perfection of traveling. At every station teams were changed with the greatest rapidity, and it was only when night came that we fell into a cautious and moderate gait, for which there was reason, as a bad accident had occurred the night before—a stage

tipping over and killing a lady passenger. Such accidents, however, have been rare on this line. The Wells & Fargo have won their immense influence and business on the Pacific coast by thorough organization —by promptness, exactness, and energy. They have even in effect driven out the Post-office from a large part of its business. With them, the overland route will grow continually more complete and convenient.

VIRGINIA CITY AND THE SILVER MINES.

Virginia City is certainly one of the most characteristic places of this remarkable region. If my readers will imagine a mountain-side of the Sierras without a tree, amid grand hills, where nothing green can be seen for fifty miles, with deep bare valleys, and in the distance, beyond Carson River, great blue mountain peaks capped with snow, and on this mighty mountain slope, a little, low-built town—say of 15,000 inhabitants, with brown, wooden houses and a few brick stores, and in its streets a throng and business almost like that of Broadway, they will have a feeble impression of the "Silver City." It is more than a hundred miles away from the first link with civilization, and yet coaches, wagons, and the stream of "mountain-schooners" pour into it unceasingly; these last are enormous freight-vans, drawn by twelve or fifteen mules, which carry everything—pianos, glass, fruit from every region, silks, machinery, clothing, wines, furniture, and all that luxury needs or money purchases. One of the characteristic features of the place, which I shall never forget, is the pensive,

patient form of the Chinaman, slowly driving his still more patient donkey, and selling his dollar's worth of wood—yet never crying his wares or soliciting a purchaser.

The town, with parallel streets, is built on the mines, and is already falling into the cavities, which fact seems to trouble the citizens very little. About the city, and in it, are the tall chimneys and the gray stone buildings of the famous mining companies, whose names are known through the world. The town is cut off from the pleasures, the art, and the civilization of the outside world. It makes up for it with the excitements of the stock market. All day long the streets boil over with stock speculation. It is a most striking contrast; above, the clear blue sky, like that of the high Alps, with its infinite depths; in a few steps, the loneliness of a desert; around, the vast solitudes and mighty snow-peaks of the Sierras; and below, men rushing to and fro with wild excitement to speculate by telegraph in the mining market of San Francisco. It is like the sudden transference of the William street Gold-room to the top of Mount Righi.

Here hundreds of thousands are won and lost in a day. Here cunning directors are occupied in "freezing out" unfortunate stockholders thousands of miles away, or are forcing up stocks, whose worthlessness they know, to incredible values, or are preparing new reports and statements to beguile the unhappy public. A single day will alter the apparent value of property here by millions of dollars.

At night, Virginia City is ablaze with the lights of liquor-saloons, and there being, I suppose, little society in the place, these haunts are thronged with men. I did not, however, happen to see any hard drinking or drunkenness. The only women visible were evidently women of bad character.

I had much conversation with some of the clergymen and others, who were seeking to benefit the morals of the town. The great thing needed is, evidently, a refined and virtuous female society. Such a throng of men, thrown together in a wild pursuit of gain, without family life or the influence of superior women, must deteriorate and injure one another. Life has no attractions to offer here but the intense struggle for gold, the excitements of gambling, and the pleasures of low vice.

So demoralizing is the place, that men who have been here for many years, lose all taste for the higher pleasures of civilization or for family life, and find any other pursuits dull and insipid. There are, it is true, families in the town of much refinement and character, but they have no perceptible influence on the mass. As a means of contending with the temptations of hard drinking, I wonder that the religious community of Virginia City have not tried the simple experiment which has worked so much good in New York—the founding of social resorts, where liquors are not sold, and good reading is supplied, such as our "Coffee and Reading-rooms." Many a young man might be saved by them.

How much there are needed, through the mining

regions of California, truly Christian and humane missionaries; men of tact and talent, without the stiffness of the profession, with knowledge of the world, and warm hearts, who could go among these rough or busy men, and offer them what they seldom receive, a manly sympathy.

California, as I have often said, is not what we in the East consider it, a country alone of success and fortune. There is many a man in the battle of life here who falls defeated and alone, or lies wounded and broken behind the successful march, or creeps away to die unnoticed. A man of religion and humanity coming among the miners, and offering a heart full of sympathy, would find so many hidden wounds—so much disappointment—so many unseen struggles for a better life, that the hearts of these rough men would open at once to any one inspired by religion and sympathy. It is a wonder to me that the churches have done so little for a population of such intelligence as this, and of such needs.

THE SILVER MINES.

The Comstock Lode, on which the silver mines of Virginia City and Gold Hill are situated, is probably the most productive mineral vein in the world. It is only a strip of land three miles long by 600 yards wide, yet it yields $12,000,000 annually. Five thousand men are employed on it during the year, and the produce for each workman is about $2,000 per annum—an average of production, probably equaled on no other mineral vein in the world. In 1865 there were 46

companies working it, who owned 22,258 feet, and had excavated about 28 miles of tunnels and drifts, and 5 3-4 miles of shafts, wings and inclines, with some 33 miles more of chimneys, &c. The longest tunnel made is the Latrobe—3.200 feet; the greatest depth penetrated is by the Gould & Curry, 821 feet. These companies have 44 hoisting and pumping engines, aggregating more than 1,500 horse-power; 76 mills are employed in reducing the ore, with an aggregate capacity for crushing 1,800 tons daily. They consume annually about 22,265 cords of wood, at a cost of about $16 per cord. Their wood and timber together are estimated to cost annually about $1,000,000.

Mount Davidson, in which this famous vein occurs, is a barren mountain, composed of serpentine, quartz, syenite, gneiss, and talcose and calcareous rocks. Its summit is 7,827 feet above the sea level, while the vein itself and Virginia City are about 6,200 feet. The lode is a regular fissure vein, and subject to the usual displacements and faults of mineral veins, which throw such an uncertainty over all mining operations. At one place it may be entirely interrupted by trap-dykes or other rocks, or the wall-rock may be imbedded in it, or other matter destitute of ore. The ore, too, is often deposited in "chimneys" which run lengthways with the vein, and thus carry the rich deposits out of one property into another; so that the unfortunate company which had been gathering their hundreds of thousands in one month, may be entirely without income the next; and yet after penetrating

posit, or they may labor for years without meeting with any.

I visited, during my stay in Virginia City, the Savage Mine, as being one of the safest and best conducted, and also went over the works of the Gould & Curry, Hale & Norcross, and Empire. In the Savage we were placed on a platform in a shaft, and with a warning from my conductor, we disappeared as if by magic from the cheerful surface of the world, and descended with frightful rapidity some 600 feet into the bowels of the mountain, getting wild glimpses as we passed of what seemed dark caverns, with lights gleaming, and mysterious-looking forms wielding the pick-ax—which were the various levels with their workmen—until we landed quietly near the bottom.

These steam-worked shafts and platforms, however, seem very dangerous things, and I hear of constant horrible accidents in them. It was remarkable how dry and commodious the various wings and levels and galleries were in this mine. My guide took fragments from each rock as we groped around the mine, and gave estimates of its value with perfect confidence.

"This will pay $40 a ton; this, $15; this, $80; this, $500; and this, $2,000!" while all I could discern was a more or less dark shade of the sulphurets. He says (what I hear everywhere) that the companies now are careful not to commit the error of the Gould & Curry, and bring all their best ores at once to the mill, but they mix them and so average their product. They all are working with far greater economy than they used to; and when a branch of the Pacific Road

touches Virginia City they hope to be able to bring down their expense for fuel (now $15 a cord) and for lumber (now $45 per thousand) at least one-half. My guide—a very intelligent foreman who has risen from the workmen—says that the miners are constantly investing their savings in one, two, or three of the shares of these companies, and knowing the precise condition of their own mines, they often make large sums.

The cost of reducing the ore in the Savage was about $16 per ton, and the yield averages about $44.

In 1866, this mine alone produced 30,653 tons of ore, and reduced 20,535—valued at $1,303,582. During the twenty-six months after they began their works (April, 1863) they produced bullion valued at $3,600,709, and paid out in dividends over $800,000. During the first six months of 1867, the mine produced $1,845,000 of bullion against $711,553 in 1866, and divided $750 per share in the same period, or $600,000 against no dividend in 1866. Its shares were worth this summer about $4,700 per foot.

The general opinion in the other mines seemed to be, that this company had ore enough in sight to pay large dividends for a year. Yet no sane mortal on the eastern coast should think of investing in this or any other California or Nevada mine on the strength of such facts.

Indeed, the more I see of mines and mining operators on this coast, the more I wonder that eastern capital can be directed to them with any confidence or reasonable hope. When a given mining stock is presented to investors in New York or New England, no one can

possibly say how much real value it represents. It may all exist in imagination, or it may represent a *bonâ fide* mining claim; but what its value will be a month or a year hence, no mortal can predict. It may be even the best existing silver-mining stock on the Pacific coast, and yet in three months not be worth one-half its present price. Every superintendent to whom I spoke in the Comstock mines said to me that he could not possibly predict what their product would be after a twelvemonth; it might be tenfold their present; it might be nothing. The business is the most uncertain imaginable. It is said that the hills about Virginia City could be covered with the silver dollars uselessly wasted by "eastern" investors and speculators.

Then mining stocks on this coast have fallen to a large degree into the hands of the most unscrupulous gamblers. No such sharpers exist in the world as deal in mining-stock speculations in California and Nevada. Beside them Wall street itself is rural and moral. Many of them have now large individual and banking capital to back them. They can falsely reduce values, and purposely diminish production, till they can lay assessments and "freeze out" the unhappy stockholders, and then buy in themselves; or they can produce extravagantly a short time, and "corral" a stock, till it rises to fabulous prices, and then sell out, leaving the unfortunate public the owner of a worthless property. The general rumor in California accuses the Bank of California, or its managers, of furthering these unprincipled speculations. But while

even the occasional prizes of silver-mining remain as they do on this coast there will always be investors and speculators.

Thus, take such fortune as this; the Empire Mining Company was organized in Virginia City on March 7, 1863. On November 30, 1864, they had crushed about 25,000 tons of ore, and had received from it in bullion, $1,043,720. *No capital stock was ever paid in,* though it was valued (in 1864) at a million; no assessment had ever been laid, and the mine had paid all expenses, beside paying the owners $308,000 above all cost and charges. Its dividends in 1865 amounted to $120,000. This property, which had cost its owners nothing, was at one time worth $10,000 a foot. In 1866 it had fallen to $1,000: it is now worth $180 a share, or $1,800 a foot.

The fluctuations in some of these mining stocks have been marvelous; thus, Gould & Curry was worth in 1859 $3 a foot; in eight months it rose to $500; in less than two years it rose to $5,000, and reached once, we think, $7,000. It is now worth $700. This company alone has taken out $14,000,000 worth of bullion, and has paid over $4,000,000 in dividends. There seemed to be very little doing in its works during my visit. The mine may, however, yet strike some fresh deposit, and its value rise again.

Hale & Norcross again has risen in a single year (1865-'66) from $150 to $1,275 per foot; it is now $3,250. This mine worked four years without discovering any ore of value, and expended $350,000 without apparent result. In 1866 it struck pay-ore, and produced

$736,394 in bullion in eight months. During the first six months of 1867 it divided $290,000 to its stockholders, and is now one of the most profitable mines on the Comstock Lode.

There was a great increase in the product of many of these Comstock mines during 1867. Thus twelve of the most important produced, in the first half of 1866, an aggregate value of bullion of $4,926,707; in 1867, in a similar period, their product was $8,043,343. Their market value has increased also in a striking manner. The stocks of fifteen leading companies were worth, on July 1, 1866, $5,739,780; on July 1, 1867, they were worth $13,683,640.

This increase of value is partly due to good luck, but partly to greater economy of working. It is said that nearly one-fourth of all the bullion received from Nevada during the past six months, has been collected from the waste of the mills. The entire cañon through which the tailings and waste from the mills about Virginia City and Gold Hill flow to Carson River, has been flumed for several miles. The bottom of the flume is covered with blankets, which are changed every four or eight hours to gather the material collected on them. This refuse and waste is said to be worked at a higher profit than some of the original ores.

The whole yield of the mines on the Comstock Lode from 1859 to 1867, is estimated at $66,000,000, or about $44 to the ton of ore. The whole yield for Nevada for 1867 is estimated at $19,000,000, or say $17,500,000 for these mines.

The ores of the Comstock mines are generally black and gray sulphurets of silver; occasionally native silver is found. Combined with the ore are sulphurets, in small quantities, of iron, lead, antimony, copper, &c. The silver has gold also associated with it.

The ores are treated by simple crushing and amalgamating. The great instrument for amalgamating is the pan, of which there are several kinds in use It is generally a cast iron vessel, two feet deep, and from two to seven feet in diameter. A shaft rises through it, turned by steam or water, and to it are fastened pieces of iron, which are made to run over the moveable iron bottom and grind the pulp Some have chambers at the bottom for steam, to keep the pulp at a temperature of 200 degrees. Into the pan is put a quantity of ore with salt, iron pyrites, quicksilver, and enough water to make mud.

The great object of the "muller," or grinder, is to grind thoroughly the material, and to bring all the particles in contact with the quicksilver. The pan is worked about three hours and a half, and then water is run into the pulp to render it liquid enough to flow off through a valve in the bottom, into the "agitator" or "separator;" as it flows off or runs over, it forms a genuine *silver mud*, in which the traveler has the satisfaction of wading for the first time in his life. In the separator, pulp is mixed with a large quantity of water, and by an arrangement of discharging openings, is gradually strained and relieved of its earthy particles, until nothing but pyrites and liquid amalgam are left.

The amalgam is drawn off from the bottom, and is washed in clear water and dried with flannel. It is finally strained through thick conical bags of canvas, which are beaten with sticks to drain them thoroughly.

The hard dry amalgam is finally carried to the assay office, where the mercury is separated by exposing it to red heat in a cast-iron cylindrical retort. The mercury is vaporised, and then condensed by a stream of cold water in a "Liebig Condenser." The silver remaining is broken up and melted in plumbago crucibles, and cast into "bricks" or ingots of silver, which are assayed, valued, and marked accordingly.

Among the many friends to whose attentions I am indebted in Virginia City, I must speak of the politeness and hospitality of Mr. GRAVES, Superintendent of the Empire Mills.

CHAPTER XV.

PROFESSIONAL ROBBERS.

I HAVE reached now the mountain region of California, where robbing is almost a profession. Not a week passes, sometimes not three days, in which we do not hear of a coach robbed or of teamsters or foot-passengers being plundered. No one resists. Your native Californian takes robbing as an Englishman without an umbrella takes a shower. It is unpleasant, he may grumble a little, but it belongs to a law of nature. A man is considered somewhat of a fool, who should be killed defending his property. I have often talked with the old settlers about this non-resisting habit. It does not arise from want of courage, for if a mountain Californian possesses any virtue, it is a reckless disregard of life. It seems to come from a low appreciation of money, where it is made so easily, and a cool, intelligent accepting of a fact, as a fact. They understand perfectly what a "six-shooter" means when presented to their face, and they hand over their "bullion." It was the same sort of American intelligence which kept New Orleans perfectly quiet under Gen. BUTLER'S strong arm, where an Italian city would have been fermenting with outbreaks.

The usual habit of the "gentlemen of the road" is this, as I have gathered from innumerable stories: They wait till they hear of a coach with a Wells & Fargo box of treasure. In a narrow pass of rocks or the depth of the forest, the driver suddenly hears from a man at the roadside, with a sack, mask, and a repeating rifle, "Hollo, Charley! Stop a bit!" Charley never carries arms, and reins up his long team at once. One robber unfastens the traces, another covers the coach with his gun, and another steps up to the coach door. There is no vulgar presenting of pistols in the faces of the passengers. The leader has his revolvers at his side and his Henry's rifle in one hand, but he thoroughly knows his men, and merely opens the door, and troubles the gentlemen passengers to step out a moment. The ladies are not molested, for the Californian is polite to women, even *in articulo mortis*. The gentlemen are arranged in a line, and then the great object of the hunt is dragged out—the Wells & Fargo strong-box. Axes are brought or gunpowder is applied, and the safe is opened. The driver offers a robber a "chaw of tobacco," and the latter talks sociably with him of the weather or other matters. No one grumbles and no one swears. If a good haul is made from the strong-box, the passengers are allowed to go back to their seats with a polite "good evening" from the highwaymen. But if not much is found, they are required to hand over any bullion or spare cash they may have. They are not searched, and manage frequently to conceal large sums in the coach or on their persons. One of my

friends, robbed thus of thirty or forty dollars, represented that he would not have enough to get home, and they restored him his money. Another was found with but ten dollars, and the thieves told him he would not have enough to get down to the settlements, and presented him with twenty-five!

Two coaches last Autumn, near Virginia City, with some thirty passengers, were thus robbed by only three or four men.

My own experience has been interesting. A friend, in the usual hearty manner of the country, had driven me over in his own team from Virginia City to Lake Tahoe, doing eighteen miles in an hour and a half, and the rest of the distance at the rate of ten miles an hour.

The lake is one of the gems of the Sierras—perhaps the wildest and most striking sheet of water in America—a broad, blue, sparkling lake, with water clear as crystal, set in the midst of grand snow peaks and an outline of mountains almost as wild as the Alps around Lake Lucerne, with forests of pine growing down to the water's edge. It is a wonder that the lake is not more known and visited. It is said by Professor WHITNEY to be over 1000 feet deep, while its mountain sides are over 3000 feet high. Professor W. supposes that its formation may be traced to similar causes to those which produced the Yosemite—a deep local subsidence in connection with volcanic action.

At Friday's Station I was to take the stage, and while waiting here, exciting rumors began to arrive

through the teamsters continually coming in. Three men, who were believed to be deserters from the army, had begun, about seventy miles below, a regular robbing raid. They entered houses, stopped passengers, rifled teamsters, and were plundering all along the way. They laid by in the day in the sage brush, and at night resumed their thieving march. The people here reckoned that they traveled about fourteen miles every night. "They were down at Yank's night before last; they'll be at Osgood's to-night, and about here to-morrow night! Are you all ready, JIM?" JIM replied that he was getting ready his pistols and shotguns for them; but this robbing by regular stages, on a telegraph and coach road, struck me as highly characteristic. I asked them why they did not turn out and hunt the fellows down. "Let them darned fellers as was robbed, hunt 'em if they want. I ain't agoin' to! Besides, WATSON and JIM HINES is after 'em."

As we drove down the mountain at night, the driver shouted before the houses occasionally: "Heard anything of the robbers?" "No; but we are gettin' ready for 'em." And to an old black hostler, "I say, CÆSAR, they'll clean you out!" "Wall," was the reply, rather pitifully, "I hain't got nothin' but one biled shirt, and that's bein' washed."

Gradually we began to hear news of the thieves. An up-driver said he passed the "What Cheer House" down below, and the landlord was in a great trouble. He had put his head out of the window, and asked the driver to stop, for God's sake, for robbers were in the house, and if one of the passengers had a pistol

they and the driver might drive them out. The driver said he "drove up to the end of the house, but there was a woman and child inside the coach, who commenced *bucking* so, and there ain't none of them passengers as ever have pistols, so I drove along," leaving the fate of the landlord of the "What Cheer" in profound mystery. To us the driver said, confidingly: "They'll clean *you* out, sure." I had a fellow-passenger on the front seat, an old Californian, who had, thus far, been profoundly indifferent to the robbing rumors. He now looked languidly up: "I say, BILL, have those robbers anything with them?" "Wall, I should think they had; two double-barreled shot guns and a rifle. I see 'em last night!" "Then they may have all I've got," said the other, indifferently, and turned over to sleep.

It was impossible for me to sleep. The coach-lights flashing among the forest trees seemed to reveal bands of armed men, and every now and then, as some rock stood out in the weird gleam, it assumed the form of a bandit, with slouched hat and gun. Several times I clutched my watch to put it in my satchel, as the coach suddenly stopped, or an unusual noise was heard, but no robbers appeared. At length, at a toll-bridge, two men with slouched hats and guns stepped forward to the coach, but their manner was too quiet for the gentry of the road, and I saw they must be the officers of whom we had heard. We had gone but a little distance beyond the bridge when crack! crack! a volley re-echoed among the rocks, which set my heart beating and caused me to hide my

watch quickly in my bag, and some gold pieces in my shoes. I expected to hear the driver drop or the team stop. But nothing occurred; the driver never stopped or spoke; my fellow-passenger barely interrupted his snoring enough to wake up and mutter, "They're done for, I bet!" evidently regarding the whole affair as we would a thunder-storm. I thought it would not do to appear ignorant of the customs of the country, even if fusilading coaches was one, so I said nothing, and we proceeded on in silence.

At length, about ten miles further on, as the driver stopped to water, he asked casually, "Did you hear that shooting?" "Yes, I should think I did," I answered excitedly; "what was it?" "I guess it was WATSON and JIM HINES cleanin' them robbers out at Osgood's," he answered indifferently. "Fust, I thought I was done for!" and this was all our conversation, except that my fellow-passenger shouted, "I say, driver, if you see anything of 'em, wake me up!"

At Placerville we learned, through the telegraph, that the Sheriff and his assistant had fought the robbers on Osgood's bridge, a few rods behind us, and killed the ringleader, wounded another, and the third had escaped; they had also wounded the assistant, in return. They must have passed us near the bridge, but for some inscrutable reason, whether dreading WELLS & FARGO'S wrath, or fearing pursuit, they did not stop the coach.

The people generally were of the impression that the third highwayman would not be found in a condi-

tion to be returned for a trial by jury. "I shouldn't like to be him, if JIM HINES was after me with a broken arm! He'll be *sot* upon there! JIM 'ill talk to him some!"

What is wanted in California is a mounted police. One would think that between the local communities and WELLS & FARGO (who are said to lose by robbers some $20,000 a year) an efficient force of police, with good horses, might be maintained, so as to make the mountains thoroughly safe.

There was a very striking instance, last year, of summary punishment inflicted on robbers. A coach had been stopped, and a strong box of WELLS & FARGO rifled of several thousand dollars. The robbers were known even by name, as usual, and as the Express Company offered a large reward, the police were soon in active pursuit. They were led by a very determined and skillful officer, named WILSON. He traced the thieves through the mountains, up to a certain cañon which divided into two branches. His men he sent up one, and he himself coolly and warily threaded the other. At length, he came in sight of them on a hillside in the distance. In California, there is no parleying with robbers, or summoning to surrender, or any such nonsense. The thief and the policeman alike hold their lives in their hands. The robbers here had fortunately only revolvers and shotguns, but the Sheriff a Henry's repeating rifle, with which he was a crack shot. He kneeled and took deliberate aim, as he would at a deer, and rolled one robber over into the cañon, the second he brought

down in like manner, and the *third*, as he sprang for the woods, was wounded, and subsequently discovered dying in the bushes. Such an act of remarkable nerve and coolness rang through the State, and Wilson was even made "Aid" to the Governor, as a tribute to his bravery.

CHAPTER XVI.

THE CHINESE OF CALIFORNIA.

ONE of the most striking figures to the traveler, in the California landscape, is the Oriental and half-pensive form of the Chinese emigrant, always calm amid all the bustle around him. Sometimes I see these Eastern laborers with their broad hats leisurely working in the fruit-gardens, as if in a tea plantation. Sometimes they are binding sheaves behind the American reapers; again, quietly and reflectively shaking the "rocker" for gold-dust in some lonely river bottom, or steadily working in swarms on a railroad embankment, or riding slowly castaway horses in the Sierras, or traveling over the country mounted on the coach-tops, or making a large and picturesque part of the stream of humanity which pours through the streets of San Francisco —always busy yet never hurried; clean, social, sober, polite, with an expression, it often seems to me, of half contempt for this western hurry and barbarism; the neatest and most respectable working population I ever saw. I am often surprised at the faces and expressions one encounters among them; such, if you saw them in European dress, you would have said were the faces certainly of scholars and gentlemen — countenances frequently of marked refinement, and eyes of deep, thoughtful, almost sad expression. It is a strange

contrast the powerful, intense, pushing sons of the Pilgrims, and this meek, quiet, dreamy pagan of the Orient, meeting on the shores of the Pacific. The latter bends like the rush before our iron race; he abandons the immemorial customs of ages, and falls, to a degree, into the current of Anglo-American civilization. One old sea captain, who had been much in the East, said he had seen many countries where the Chinese were living as strangers, but "this was the only one where John Chinaman hides his pig-tail." He dresses frequently (in the country) like an American; he begins occasionally to eat beef, and has already learned something of Yankee sharpness. In general, however, he is still a stranger—the very incarnation of meekness and submission beneath the strong race which he is serving.

There is one habit in man which always seemed to me to bring him nearest to the brute creation—the disposition to attack or oppress a fellow-creature who is disabled by nature or is too weak to resist; that tendency which makes horses kick the lame one, or fowls attack the dying one of the flock.

The Chinaman has been the luckless object of this brutal instinct in California. He has incarnated, amid a Christian community, the inspired doctrine of "Resist not evil!" "Turn ye the other cheek!" and the result has been that every man's hand has been against him. The whites have cheated, robbed, beaten him, and he has returned it all with docility and faithful service. When struck, he struck not again; when robbed (at least so it was a few years ago), he com-

plained not; when murdered, there was often no redress. The most miserable drunken white ruffian could beat him, or strip him of his hard earnings, or kill him, and if there were no white witnesses, justice could not overtake the offender. While all other men —even the lowest vagabonds—were gladly admitted to the mines, he alone was, and is now, excluded; and even on the placer-diggings, he alone must pay his tax of four dollars before being permitted to work. Even the Digger Indians, seeing this universal oppression, ventured also to plunder and persecute this unresisting stranger.

He had no influential friends; he did not know the language; he had no power to resist, and for years the Chinaman tried the virtue of meekness on his enemies.

It is a history, like our treatment of the Indians and the negroes, which should make every American blush —of wrong done to the helpless and borne with meekness; of oppression on the weak which never called forth an act of resistance or word of retort. At length, the aspect of this Christian patience in a Pagan; this meekness, which bore all without a murmur; of this enduring, industrious, respectful stranger, who did his work faithfully, and returned not evil for evil, began to touch the generosity of Californians. The Chinaman, even against the prejudices of race, and the competition of ignorant labor, began to win his way to public respect. White men sometimes took his part against white ruffians. Employers found him too useful to permit him to be driven off by "anti-coolie" vagabonds. The conscience of the people arose

against this oppression. Public opinion more and more sheltered him, and set the pursuit of justice after those who wronged him. White men have even been hung, in these later years, for murdering Chinese. Their labor, too, became more and more indispensable for the country. A hundred different branches soon depended on it. Without it, it was evident that manufactures and a large part of Californian agriculture and horticulture would cease to exist; railroads could not be constructed, and a vast deal of business must be contracted or given up. The result, both of conscience and of interest, in California, has been a great change of opinion and action toward the Chinese. People everywhere speak well of them, and agree that they are the most industrious and steady of laborers, not as efficient, perhaps, as the Irish, but more regular and sober, and with a great talent at imitation. In person they are the neatest of creatures. I have seen a whole gang, after a day's work on a farm, washing themselves all over with warm water, which they keep ready for their return, as carefully as a company of gentlemen, and I was assured this is their daily habit. The common laborers are said to keep a horn instrument for cleaning their tongues every morning! They are always neatly and nicely dressed, and are far more agreeable coach-company than the Mexicans or Spaniards here, who are exceedingly "odorous." But though opinion has so much changed toward them, I frequently hear of or see such acts as this, reported recently to the *Bulletin:*

"A BRUTAL SCENE.

"*Editor Bulletin*—A most inhuman scene occurred on Sunday evening at the corner of Green and Dupont streets. A party of young scamps—the oldest not more than eleven years—attacked a peaceable Chinaman, without provocation, and beat him in an unmerciful manner. They pulled him down, beat and kicked him, and pelted him with stones till the blood ran out of the wounds. A large crowd stood around at the time, and none of them offered to interfere. One man—elbowing and pushing himself up to where the poor fellow lay—seeing that it was a Chinaman, exclaimed, 'O, it's nothing but a Chinaman! Served him right; been a good thing if they had killed him entirely!' When the policeman arrived the boys had decamped; and when he proceeded to lift the Chinaman it was found that he was not able to stand, the poor fellow groaning the while in terrible agony.

"These flagrant outrages are frequent in that neighborhood. Hardly a night passes but what a Chinaman is attacked by these young ruffians."

Or this:

"ILL-TREATMENT OF CHINESE.—Not long ago, a gentleman passing along Kearny street, interfered to save a little Chinese boy from the attacks of a dog, whom half a dozen white-skinned scoundrels were setting upon him, that they might enjoy the precious sight of the agony of the screaming child. That instance of inhumanity is not an isolated case. The *Alta* of yesterday morning says:

"Last evening, at the fire on Dupont street, a crowd of Waverley Place loafers, and thieves, and roughs, who were being kept back from the fire by the police, amused themselves by throwing a Chinawoman down in the muddy street, and dragging her back and forth by the hair for some minutes. The poor female heathen was rescued from their clutches at last by officer Saulsbury, and taken to the calaboose for protection. He also arrested one of her assailants, who was pointed out by the woman, but as she could not testify against him he was dismissed on his arrival at the calaboose. The woman then begged an officer to take her to her husband's house, saying, in piteous accents, 'Do pleasy with me go! So many white mans killy me! Do with me go!'"

My laundryman came recently, with his basket splashed with mud and his clothes spoiled, weeping

bitterly, saying that some boys had pelted and attacked him. He evidently had not resisted. I was pleased to see, however, the other day, that some "anti-coolie" school-boys, who were attacking some little yellow boys, met with as good as they gave, and at length were fairly driven off the field by the stones of their Mongolian antagonists.

The odious tax on the Chinese miner, however, still exists, and he is still excluded from most of the mines. Moreover, at this day, a white scoundrel could enter the cabin of half-a-dozen honest Chinese with his revolver in hand, rob them of their toilsome earnings, and murder one or more, and no testimony of theirs could convict him. Such an injustice as this, established by law, is a damning blot on Californian civilization. It is as bad as many of the abuses of slavery, and one is surprised how the humanity and religion of this State could have endured it so long. No sensible man of any party defends it.

The old battle of humanity fought out on our coast, of justice to the negro, is going on here in different form—of justice to the pagan. The same weapons are used, the same appeals to low and ignorant prejudices of race, and the same assertion of the universal rights of humanity. Caste and ignorance and demagogue sophisms on one side, and enthusiasm and generosity and the principles of justice on the other. In the recent political canvass, the Union candidate was represented in caricatures as leading to the polls a Digger Indian, a Chinaman, and a baboon, though all

that he or his party ever claim for the Chinaman is "justice before the law."

And when we read of a prominent politician—Judge AXTELL, a successful candidate for Congress—uttering such nonsense as this (and we seem to have heard precisely the same sentiments a hundred times in New York political meetings), we know perfectly what sort of men utter them, and what hear them:

"The employment of Chinese," said the Judge, "on the Pacific Railroad, toward the construction of which California and the United States had made magnificent donations in money and lands, he condemned emphatically. He was opposed to, and would prevent as far as possible, giving that glorious patrimony to Chinese or negroes. The advantages of that great work must redound to the benefit of white men."

We also know how such a contest must end. We know that the spirit of the age and all forces unseen, are moving like a spring-tide with the party of justice, and however long delayed, the triumph of equal rights to all must come.

CHAPTER XVII.

THE CHINESE.

A FRIEND, to whom I am indebted for many hospitable favors, took me recently among the Chinese merchants and in the Chinese quarter of San Francisco. The merchants were gentlemen evidently, and received us with as much politeness and refinement as the same class would visitors in any civilized country. We were invariably offered tea, which was made at the moment, in exceedingly small and delicate China cups, and then drained from the leaves into another cup, and drunk without sugar or cream—a finer tea, it struck me, than any we have on the eastern coast. They all spoke rather discouragingly of business, whether because they considered that were safer in a foreign country, or because the Chinese are gleaning less from the diggings, and their custom is falling off. It was plain that they had no love for the country, and feel the oppressions and disabilities bitterly to which they are subjected. If they had any matter of dispute with an American or with one of their own countrymen, they preferred to decide it by arbitration, they said, as they had no expectation of any justice from juries or courts. They all expected to return to China, though some had been here a number of years. What pleased them most here was the climate, of which all spoke

with much satisfaction. If I understood them correctly, most of the under-class were laborers from up the rivers in China, who were sent out by four different emigration companies, who paid them so much wages and received what they earned. But few of the upper classes ever come here, and seldom any families. The women were mostly of bad character. They all agreed that this was not the place for a Chinese lady.

Those who spoke English seemed generally to have learned it in a school which a liberal American has opened for their children. We examined their computing tables with sliding balls, and put some rather long problems to them, which they completed as soon with these as we could with figures. Some took us upstairs to their little Chinese parlors, furnished with handsome formal black-oak chairs, nicely carved, and with Japanese tables; the floors were covered with matting, everything very neat and clean. I am told that they are exceedingly faithful in all their engagements, and that there are merchants here who might have as good credit as any American names in San Francisco. "There are men here," said my friend, "who, if they should agree to pay $250,000 for something the day after to-morrow, would be certain to present the cash on the very moment; though where they keep it is a mystery, as they do not bank with us." I could not find that they ever insured with American companies. A legal friend—a most genial and able man, MR. TOMPKINS—who has occasionally had them as clients, tells me that he never in his professional experience has had more intelligent

and reasonable clients, or has met men with more pleasant little courtesies. Another says that he has occasionally been present at dinners given by their leading merchants, and their tact in offering the healths of particular individuals, and coupling with them some personal and appreciative remarks, could not be exceeded in the most polite English or American circles. We asked the most cultivated of these merchants about Confucius' writings; but it was to them evidently something as Virgil would be to an educated merchant at home—a school exercise which they never read now.

The lower quarters of the Chinese were by no means so attractive. The introduction of abandoned women, gamblers, opium-sellers, and liquor-dealers, together with the great crowding of the working population, are already producing in San Francisco what we know so well in New-York as "fever-nests," and centers of crime and poverty. The Chinese dens here already need some strict sanitary regulations and police interference. If it were not for these blessed winds, I am convinced they would have originated pestilence long since. This importation of lewd and diseased women, it seems to me, might be checked by some vigorous action of public opinion on the ship-owners. The Pacific Mail would certainly never lend itself to such a disgusting branch of business. In these rounds we saw many children which would show that some of the working-men must have brought wives with them. Notwithstanding the few idle and lewd men to be seen in the low quarters, the great

proportion were very busy; some were making cigars, others keeping groceries or meat-shops, and very many were going out to work in American manufactories. There were numerous Chinese laundries where American families have their washing done at a lower rate than white washerwomen can afford. The Chinese, it may be remarked, sprinkles his clothes by spitting water from his mouth.

The employers of the Chinese laborers invariably agree that they are excellent workmen. They never have, like the whites, a Sunday spree and a "blue Monday." They are always "on hand" at the time agreed upon; always sober and industrious. Now and then they have a difficulty with their native "bosses" (who manage their affairs with the American employers), because there is "too much workee and too little payee;" but this is soon set right, and they prove most trustworthy laborers. They soon learn to cook, and are good servants. I see that one of them in a mining town has been so successful recently as an assayer, and in subduing refractory ores, that the people, in their enthusiasm, propose to have him "naturalized" as an American citizen.

Notwithstanding this low quarter and the vicious Chinese in it, I have no hesitation in saying that nowhere in the world is there a more sober, neat, hard-working class of laborers than the Chinese of California.

Still with all this, and much more that could be said in their favor, the problem about the Chinese in America is a most difficult one. Under our form of government we ought to have no race or class

which cannot be assimilated. Every class ought to have the power to protect itself by the ballot, the education and the sense of responsibility which it gives. But it is obviously most unwise to give the suffrage to the Chinese at present. They do not (generally) understand our language. They are entirely separated from us in all their ideas and habits. They probably possess the vaguest possible knowledge of our system of government, and they are a transient population. No one at present claims this right for them. And yet if their numbers increase, and they continue subject to the wrongs which oppress them now, the conscience of our people will be aroused, and the ballot will be claimed—and justly—for them, as their only protection from tyranny and oppression. Besides, to have a great class of helots among us, outside of our popular Government, would never suit our system, and to include them in our system might almost overturn it on this coast.

In that golden moment, in which the whole question of suffrage for the South, and through the South for the country, was in effect settled by Congress for all coming time, had we set up intelligence as a test, we would have begun that direction in which no ignorant, debased or foreign under-class could ever hereafter give us any terrors. All the reasoning mind of the nation seemed to demand this test. But through one of those accidents which seem sometimes to determine the fate of nations, we took our drift, and henceforth in this current we must move, whether toward weal or woe. With intelligence as

a test of suffrage, the Chinese question could have been settled ultimately in California without danger. Now there seems no solution. The practical middle course, it seems to me, for the present, is at once to make the Chinese "equal before the law" with natives or whites—without justice no State is secure—and then seek by every legal and proper means to discourage immigration. There are, I suppose, 50,000 Chinese* in this State or on its borders—that is, one-tenth of its population. This is quite enough of a transient, Asiatic, unrepublican people, to mingle in the community which is to build up the great Pacific Republic of future centuries.

But if they cannot be prevented from coming without too odious exactions, then the christian States on the Pacific coast must accept the burden which Providence has thrown upon them, of this pagan race, and do their best to elevate them. Thus far the experiment of christianizing the Chinese in California has been anything but a happy one. I am told by friends of the missionaries in China, that the influence of the returned Chinese is uniformly against Christianity. Their reasoning is, that if the doctrines of CHRIST bear such fruit as they have experienced in America, they prefer Confucius or Buddha.

No doubt, however, they carry back many new ideas, and a respect for American energy and invention. They learn the English language, also; and I cannot doubt that as time goes on, and they are more

* The number in San Francisco ranges from 1,000 to 6,000: in the State from 40,000 to 60,000; not increasing much.

justly and kindly treated, many Chinese will be brought to look carefully into the doctrines of Christianity, and thus supplement the truths and wonderfully humane principles of their great Teacher, and learn what he never taught — the sublime and ennobling truths and hopes of the Christian Faith. The influence hereafter of this contact of the Orient and the West on our Pacific shores, we can but feebly imagine. Time alone can unfold it. But first of all, among a Christian people—"Justice must be done."

We append, as an illustration of the subject, extracts from a recent debate, in the California Legislature, on the question whether their "Criminal Practice Act" shall be so amended as to allow Negroes, Chinamen and Mongolians to be witnesses against white men, when an injury to their own persons or property is charged.

The member from Placer County said:

"We are now educating a class of robbers—boys and young men—who have a perfect disregard for the rights of others, because under the protection of the existing law they can commit assaults, and murder and rob, with perfect impunity. These robbers even talk of their deeds, and admit and boast of them without fear of being held to account for them. This is because courts have held that other testimony, direct as to the commission of the crime, is necessary, beyond proof of the confessions of the criminals themselves. The fact that these men depend upon robberies for a livelihood is well understood, yet they go on without fear of punishment. There have been many men in Placer County, loafing around the mining towns for weeks at a time, idle, and without means of obtaining a livelihood, destitute of money, until on a certain morning they would be found to have plenty of money, and at the same time the fact was everywhere known that there had been a robbery committed at the Chinese town in the vicinity. Men would say to them, 'Ah! you have been down calling on

the Chinamen again,' and they would laugh, and not take the trouble to deny the insinuation—or admit it openly. The want of such law, apart from the losses of the Chinese, has cost Placer County, in futile efforts to punish crime, at least $10,000 during the past year. The Sheriff alone, out of his own pocket, has spent in the last two years, at least $1,000, for which he has not been reimbursed, in efforts to punish this class of persons. He spoke of a recent case where they robbed, beat, and murdered Chinamen, and one of the robbers being caught by them, was now in jail, but likely to be discharged, 'because none but Chinese testimony against him could be procured.'"

Mr. SHAW said:

"He had always been surprised at the difference of opinion among sensible men on this matter of testimony. The true principle would naturally seem to be to admit the testimony of any sane human being who could throw light upon the facts in question. But these continual outrages upon the person and property of Chinamen were disgraceful to our State and our civilization. Admit the truth of the charge made against them—that they are a nation of great liars—then they must, in giving their testimony, confront a jury imbued with this prejudice, not disposed to believe them unless their evidence is corroborated by circumstantial evidence, or otherwise. This prejudice may go far to prevent the effect of false testimony. English courts never refuse to swear Chinamen or any other nationality."

Mr. JOHNSON, of El Dorado, said:

"He knew that such a law was necessary, because the same system of robbery and oppression mentioned as existing in Placer County, also existed in his own county."

He also said:

"That there was another point to which he wished to call attention; it was that from robbing Chinamen to robbing white men the transition was very easy. He had acted as Judge in his own county, and therefore knew this fact, and alluded to several cases of murderers who had been arrested and convicted of killing white men, who commenced by robbing Chinamen, and were gradually emboldened by the impunity with which they had operated. Therefore, to protect our own people we must prevent this impunity for crimes against others. Whatever he might think as to the propriety of

limiting the political rights of such persons before the law, they should all stand equal as to the protection of their lives and property."

I regret to say that though the amendment passed the Senate by a large majority, it was defeated in the Democratic House.

The following comments which the writer made in a New York Journal, on this proceeding, may be repeated here. "In other words, the State Assembly has put itself deliberately in the position that any white ruffian might plunder and murder any half dozen decent and honest Chinese laborers, and unless his deeds were seen by other white men, no court could convict him. We venture to say that no act in the code of the Inquisition, under ALBA, or in the old English system of legal injustice against the Irish, or the laws of the South toward the negro, was more barbarous, cruel, and stupid, than this provision of the California law of the nineteenth century. It has not the excuse of the Spanish Inquisition, of bigotry; or of English tyranny, the pride of conquest; or of Southern cruelty, the stern necessities of a system of forced labor. It is the pure stupidity of race and caste prejudice.

"There never was a laboring class more harmless, industrious and respectable, than the Chinese workingmen of the Pacific Coast. All testimony agrees that they are more reliable than the Irish laborers; that they keep their contracts excellently; and that with their merchants "the word is as good as the bond." They are an absolute necessity to the material development of California. Without them no railroads would be built or manufactures carried on, and

half of the grain and fruit production of the State would at once be cut off or never gathered. Every household depends on them, and few have cause to complain of their idleness or dishonesty or fickleness. To drive them out of the State by oppressive legislation is like renewing the French edicts against the Huguenots, or the Spanish toward the Moors. It is to banish the most economical and productive class in the State. And yet hardly a paper reaches us from the Pacific Coast without an account of some brutal and barbarous violence toward these unoffending foreigners by white ruffians. The Act in the Criminal Practice which it is sought to amend, is in reality an Act to encourage murder and robbery of Chinamen by Spanish or American thieves and cut-throats. And when one thinks what a Californian white or brown ruffian is—the very scum of the *proletaires* of the earth, a man steeped in crime and often a refugee from justice, whose word would not be accepted by his own gang of murderous outcasts—and that his testimony is to be received, while the oath of the decent, honest, hard-working Chinaman whom he has sought to murder, is to be rejected—we may judge what this step of Californian progress is. A State with such an act in its criminal code is not worthy to be called civilized. Its civilization is but the flashy gilt over barbarism.

"For the only argument which can be used against Chinese testimony, that this people do not believe in God, and therefore do not know the nature of an oath, is an argument already passed by modern progress,

which holds that all testimony should be received and estimated by judge and jury for what it is worth. Besides, the Chinese have oaths or rites which are binding on themselves, and which could be employed in our courts.

"But whether California chooses to abide by this code of barbarism and bigotry or not, we trust that it will be seen to be the duty of the new Chinese Ambassador—Mr. BURLINGAME—to protest, both in the name of humanity and of the Chinese Government, against the acts of atrocity which we hear of weekly from the Pacific coast, committed on unoffending Chinamen. Some protection ought to be afforded by international law to these oppressed foreigners, if State law will not afford it. And the public opinion of all just and right-minded men should be brought to bear promptly on a community which can sanction such cruelties and oppressions."

CHINESE THEATRE.

I went, while in San Francisco, one evening to see the Chinese theatre. It corresponded in its general style to the sixpenny theatres of London, or the "Bowery" of New York; but it struck me, though of course knowing nothing of the language, that the acting was more lively and natural than in them. The first scenes were scarcely attended to. Every one smoked, even the actors, the band and the prompter; the audience smoked incessantly and chatted together. The galleries were crowded with women—I suppose

of doubtful character—but they were clean, well-dressed, and not immodest in manner. Everything was orderly, and the only disturbance was made by a white man insisting on sitting on the back of a bench, from which he was forcibly jerked down by a policeman. The band played a most monotonous *ting-tong* through all the play, and some of the dialogue seemed to be intended to be operatic.

The second and third acts became more lively and manifestly began to attract the interest of the audience. There were one or two passages of pantomime, or a sort of polite dialogue of manner, where one person tried to cut another, which were very well done. The principal character was evidently a sort of a clown, or a countryman ignorant of polite manners. He was brought up before a judge under certain accusations, and instead of prostrating himself as the others did, he squatted on his hams, to the great indignation of the officials and the intense delight of the audience.

The accent and manner of the judge were as thoroughly official and refined, in contrast with those of the bumpkin, as they would be on an English stage. After passing through various adventures, the countryman seems finally to be reconciled to his enemies and acquitted by the court.

The last play created great excitement, and was, I was assured, part of a historical drama which runs on for months. There were processions of kings and queens, and warriors and governors, and soldiers and retainers, and fierce battles, and executions, and bastinadoes,

ending in a tremendous confused finale, which to us was incomprehensible. There seemed to be throughout, no female actors; men acted the women's parts.

On the whole, the Chinese show seemed to be quite up to the standard of the "Sixpenny Gaff," or the New York Bowery.

I visited also the other extreme of Chinese sights, the *Temple*. It was by no means equal in its own arrangements to the theatre. The lower part of the building seemed occupied as a very inferior and miserable lodging-house, and even the outer courts of the Sanctum were invaded by cooking and preparations, apparently for lodgers. The inner and sacred shrine was occupied by a hideous, nondescript Buddhist idol, with little candles burning before it, and various arms and bronzed ornaments scattered about it. The manner of the worshipers was anything but reverent.

On one occasion, while traveling in a desolate mountain region, I was much impressed by the sad, lonely form of a Chinaman, walking pensively toward a solitary grave, and scattering little papers as he went. These, it seems, were his prayers to the spirit of his ancestors and to the departed.

Again, lately, when a large party of Chinese set off in a steamer for China, the waters were covered with these bits of paper from the crowd on the dock—being prayers for their safe return home.

CHAPTER XVIII.

LARGE FARMING.

I DROVE up recently to the doorway of a picturesque house, belonging to one of that class perhaps peculiar to California—"the large farmers." The building, like very many in the country districts of the State, shows an effort toward an appropriate architecture. It is built of wood, painted brown; the roof-line is broken with sharp gables, and the front has a very broad verandah, ornamented with creeping vines; the wings run out behind, inclosing a little fountain in a small square, into which the central hall opens under another rear verandah. In this climate, galleries or verandahs are an essential of life, and as bedrooms under the roof are not objectionable, the pointed gables and picturesque roof-forms can be adopted without difficulty. Much of the inside is finished with native woods, varnished. Few on the eastern coast have any idea of the beauty of some of the native woods here. The State is unfortunately deficient in some of the most useful woods, especially the oak and ash—so that the material for barrel-staves and wagon-frames has to be imported from our coast; but in ornamental varieties she has some exquisite specimens. The *manzanita*, when polished, has a deep red, with exquisite graining, more beautiful than mahogany. The laurel is one of the

richest woods ever used for paneling, and the white oak is remarkably pretty, and even the red-wood ornaments a room nicely with its rich color.

One may judge of California hospitality when I say that almost my first salutation from the gentleman was, "Well, you have come to spend a month, of course," and a riding horse was at my service every day, &c., &c.

This property is within four hours of the city, and will soon be within two. It enjoys the coolness of the sea-breeze without the chill and dust of San Francisco winds. You have the sun of Italy and the temperature of an English summer; seldom in winter a frost, and in summer a heat rarely above 80 degrees, and more generally about 70 degrees, with nights always cool. As a consequence, this gentleman's garden will show a variety of vegetation, I believe, rarely seen anywhere else on earth. Think of an orchard where the olive grows by the side of the quince, and the almond near the barberry; where the fig and the grape flourish equally with the apple, the peach, and the cherry. His house is almost embowered in olives, and fig-trees, with trunks six inches thick, form groves about it, while long lines of almonds stretch away toward the rear. Behind it is a dense orchard of peach-trees. A small palm is flourishing in front, and a few rods off, in the kitchen garden, Indian corn and peas and tomatoes. Such a combination of the best fruits and products of two zones is a wonderful spectacle. California is an elysium for the orchard-grower or tree-planter. Here is a splendid hedge ten feet high, of the "cherry-holly," planted from seed a few years ago; here are orchards

bearing immense quantities of fruit, only five or six years old, and shade-trees from Australia, perhaps seven inches thick in trunk, set out from a shoot only two years since.

A man sits under his own grove in ten years, and gets his fruit in two or three. The most exquisite trees and growths are being introduced from Japan and Australia. You see in such grounds the beautiful Australian gum-trees (*Eucalypti**), with their singular variety of leaves on the same trunk, destined hereafter, if they equal their Australian ancestors, to reach a growth of 250–300 feet, and a girth of 100. Japanese acacias and shrubs, with variegated leaves, also abound, and the symmetrical Norfolk Island pine, the Monterey cypress and pine, and the young giant *Sequoia*, beginning patiently his thousand years of growth. Everything grows here, the ivy as well as the Japanese honeysuckle.

On the upper portion of this gentleman's garden a stream of water was turned, brought from the mountains, and occasionally ditches were unclosed, which carried it among the strawberries and vegetables, and along the roots of the fruit-trees, in a rough kind of surface-irrigation. All that California gardening wants is water, and then the sun does the rest. On every farm you see either the wind-mill or the artesian well, to carry to it the great necessity. There is arising, however, a considerable difference of opinion among

* If I recollect right, there were ovate leaves and narrow lanceolate leaves on the same tree. Could it be a cross of the *E. risdoni* and *E. coccifera*? or was it simply the different age of different parts of the tree?

horticulturists about the extent to which irrigation is necessary. The best vineyards do not use it, and it is said shade-trees are made shallow-rooted by too much of it.

The farm around the house is a sight to behold, and one which begins to implant in a stranger's mind some adequate idea of the immense resources of California. Away over the plain, down the slopes of the ravines, over the hills opposite and into the valleys beyond, stretched the rich golden grain, acre after acre of such product as the world scarcely ever saw—long, full ears, with dry, glutinous grains and gracefully bending stalks; not a weed or a tree appear to disturb the view, except sometimes the wild mustard (itself a profitable harvest) scattered in portions of it. In parts the harvest has been cut, and thick, regular bundles of sheaves, like crowded encampments, dot the hills and vales as far as the eye can reach. In some places the product will reach sixty bushels to the acre; in one field of two hundred acres, it will be fifty bushels. In one quarter, the gentleman has taken *eighty-seven bushels per acre* from 200 acres. The whole farm will average over thirty-three bushels, and this gentleman will reap 60,000 bushels this year. The *wild-mustard seed* in the wheat pays the whole cost of threshing! He has sixty men at work, of whom forty are Chinese, and he is harvesting from about sixty acres a day. The machine used is the ordinary "header" of the country, which cuts the heads of the grain and throws them into a large cart, looking like a moving house driven by the side of it.

There does not seem as much saving of labor in it as might be expected.

The Chinese are paid $1.50 (gold) a day and board, and prove excellent workmen; ordinary hands for light work receive $1.00 to $1.50 a day without rations. The scale of operations may be judged, when it is mentioned that the sacks alone for the wheat will cost this farmer $5,000.

I was shown in one field a unique sight, a "volunteer crop" of wheat, which had sprung of itself in a field unbroken and uncultivated, from last year's scattered seeds, so rich that it would probably average forty to forty-five bushels to the acre. My friends said that they had known barley even in the *third year* of a volunteer crop reach forty-five bushels, where not a touch of human labor had been put upon it. Let it be remembered that the average yield, even of the West, in wheat, is only fifteen bushels to the acre, and one can understand what a soil and climate this is.

In one year (1852) this gentleman states that he harvested 700 bushels of potatoes to the acre from a field of 20 acres.

The threshing of the wheat is done entirely by steam. The machines go around from farm to farm and thresh about 900 bushels a day. The thresher gets $40 per day, and the cost is about 9 cents a bushel. The profit on wheat is about $15 an acre here; and the cost of planting, cultivating, reaping and sacks, will reach $15 (not including rent).

During my visit, we took a drive through the Livermore Valley. This was an agricultural sight such

as no other country can present. Think of 10,000 acres of tall golden wheat without a tree, or hedge, or fence, extending its yellow waving surface as far as the eye could reach, and averaging seventy bushels to the acre—*four hundred thousand* bushels in this petty valley, of which no one ever heard. And five years ago, no one thought this land was worth cultivating, and it could have been bought for $5 an acre—now it is worth $100.

When my friend first came here, he had wisdom enough to see that the great wealth of California was not in its gold-mines, but in the soil.

Like most early Californians, he brought with him but a few dollars, and left heavy debts behind him in the East. All the new comers were rushing to the mines, but he hired a vegetable garden, for $5,000 for five years, from a Spanish Mission, and made twenty thousand dollars year after year. There was barren-looking land lying around the Mission which no one would cultivate, and the owners of ranches in what is now probably the most productive soil in the world, used to come to the neighborhood of the Mission to plant a few vegetables, where they could enjoy the blessings of the priests—not believing that the outside soil could yield anything. Mr. A. bought some of this; and hearing that there would be a dearth of potatoes, he planted them, paying enormously for everything: $250 a month for a common laborer, for instance, and eight cents a pound for freight from San Francisco. But the next year he made *two hundred thousand dollars* from his potatoes.

The year after, however, there was such a harvest of potatoes through the State, that it did not pay to take them from the ground, and he lost fifty thousand dollars! He went on then experimenting on a gigantic scale; at one time owning the whole country-side; and once, he spent $18,000 introducing apples, and lost it all; at other times he lost still more heavily. He is now prosperous and a large farmer, and widely known for his warm-hearted hospitality. Though his ranche is some 4,000 acres, there are ranches to which his is a mere inclosure. I hear of one, near the city, whose boundary line, if you stand in the center, is the horizon. Those in Los Angeles County are immense. It is fortunate for the interests of the State, that these immense properties are becoming rapidly broken up. With modern combination in the use of machinery, a large farmer cannot use costly contrivances for saving labor more than a small one. His only advantage and benefit to the community is, that he can try experiments more. But the Californians have such restless and inventive minds, and are a community of such wealth, that even the poorest landowners will always be experimenting on some new productions. The immensely superior value of small farmers, or freeholders, over large, for the moral and political well-being of a community needs no argument in America.

Among Mr. A.'s various crops was one of *almonds*. This tree, he reckons, yields twenty pounds to the tree in seven years; the profit is about $2.00 to a tree. The *figs* give twenty pounds to the tree in fourteen

years. They seem to me, both dry and green, quite equal to the best foreign. They command good prices in the market. His olives looked well, and they are now erecting olive-presses in various places to press California olive oil, which is said to be quite equal to any foreign oil.

But the delicious fruits were the peaches, plums, and nectarines. The trees hung heavy with the crops of them. There were all our best varieties, and fully equal, if not surpassing ours in richness and delicate flavor. It is a mistake to suppose that the California fruits are inferior to those of the Eastern States. The only one of poor flavor is the apple, which has suffered much from an insect. The strawberries, blackberries, raspberries, and cherries, are also quite equal to those of our coast. I used to spend hours in these orchards, luxuriating on the delicious fruit. Unfortunately for the grower, these fruits have become so plentiful in California, as hardly to pay for raising. Still I was pointed out, in this neighborhood, a clergyman's garden which added some $3,000 per annum to his meagre salary.

Flax is also beginning to be grown in this county. My friend raised 1,300 pounds of seed on the acre in one field. It must become eventually a very profitable crop. The importance of it may be judged from the fact, that in 1866, there was a call for over 9,000,000 sacks for wheat, which were imported at a cost of $1,500,000. The total crop of seed is estimated now at about 150 tons. There is said to be a market for over 1,000 tons annually for oil purposes.

The raising of *Hops* also is increasing. There is no doubt that the yield is much larger, and the quality better, than on the eastern coast. The beer made from it is far superior to ours. They mention instances where 2,000 to 3,000 pounds of cured hops have been raised to the acre. I heard of one farmer in Sacramento, who made, from hops, $1,000 per acre this year. The dry climate, free from storms, with a succession of southwest winds, warm genial sun, and copious dews at night, is singularly favorable to this growth. The pests of European hop-growers, such as the *aphis*, hop-mouse, mould-blight, and various parasites, never trouble the Californian. The low lands along the river-bottoms (not the *adobe* soils), with deep rich loam and porous subsoil, are the best lands for it. But even on the uplands, 1,500 pounds of dried hops to the acre are not uncommon.

The picking is done by Indians or Chinese, at $1.00 per day, without rations. The usual price is 25 cents to 35 cents per pound; they have been as high as 85 cents. Instances are given of hops four inches in length being obtained the first summer after planting. The total crop is now 200,912 pounds, from 313 acres.

Many of my agricultural friends believe that the Tule swamps about the mouths of the California rivers will eventually become rice-fields. The climate, however, is probably too cool for the growth of this valuable product.

Improvements in breeds become a source of immense profit in California. I passed in this neighbor-

hood a sheep-farm whose owner had imported seventeen ewes and two or three rams of merinos, which had cost him $7,000; he derived from them a steady income of some $5,000 a year. One sheep-raiser in Alameda County has over 1,500 head of thorough-bred merinos. It is estimated that there are at the present time 2,500,000 sheep in the State, producing about 12,500,000 pounds of wool annually. In 1856 the clip was only 600,000 pounds.

The following is an account from the *Evening Bulletin* of

THE CASHMERE GOAT AND COTSWOLD SHEEP IN CALIFORNIA.

"The Cashmere goat was first imported from Angora, in Asia Minor, to the United States, as early as 1846. In the fall of 1861, W. Landrum obtained two bucks from a grower in the State of Georgia, and brought them into this State. In the fall of 1867, Messrs. Landrum, Butterfield & Co. imported eighty-four bucks and four does into this State, direct from Angora. They were driven 900 miles to Constantinople, and from thence were shipped to Boston, and thence to California. They were taken to Monterey County. The result in the growth of the pure bloods, and also in the cross with the common California goat, has far exceeded the most sanguine expectations of those engaged in the business. The growers have on hand, by crossing, about 1,500, including those of pure blood. They have also on hand 100 or more bucks for sale, containing three-fourths, seven-eights, and fifteen-sixteenths of pure blood. Beside these, they have sold upward of 100 of different grades to parties who have engaged in growing the Cashmere wool. It is noteworthy that the fiber of the wool, with rare exceptions, becomes pure white from crossing the first cross with a black; and the second cross gives a fiber sufficiently fine for valuable purposes. The fourth cross produces a fiber nearly as soft and fine as the pure blood. The only difference really perceptible is, that the fleece is not quite so heavy. The weight of the fleece of the pure blood ranges from four to ten pounds. As yet, the Cashmere wool in this State can not be said to

have any fixed price, as at present there is no demand. At the East, where a demand exists, the manufacturers informed Messrs. Landrum & Co. that they 'had paid as high as from one to sixteen dollars per pound,' the average price being from two to three dollars per pound.

"Messrs. Landrum & Butterfield have five pelts of Cashmere wool, two pure and three graded, in 'Quincy Hall' Clothing Emporium, on Washington street, near Montgomery, where those interested in the growth of Cashmere wool, or wishing to verify the facts above stated, can inspect the fleeces for themselves, and can obtain further information from Thomas Butterfield, who is now stopping at the Russ House, or by addressing him at Santa Cruz. It should, perhaps, for the benefit of wool-growers in this State, be further stated, that the Angora goat seems to be as hardy as the common goat, feeding on the most poisonous weeds with impunity, and to be free from the diseases to which sheep are liable. The foregoing results may be taken as a practical demonstration that the growing the Cashmere wool, at no distant day is to become an important branch of industry in this State, and indeed on the whole Pacific coast.

"Messrs. Landrum & Butterfield are also engaged in the importation and growing of the Cotswold sheep. One of them is now in Canada, and is expected to arrive here some time in August, with fifty or more full-blooded Cotswold to increase their stock, and to supply those who may wish to purchase to cross or improve their flocks. The fiber of the Cotswold is more valuable, and the fleece heavier, than those of any other sheep. The weight of the carcass is double that of the common sheep, and the mutton of a finer quality—being only equaled by that of the Southdown, while they are more prolific."

WHEAT-GROWING COUNTIES.

From the wheat yield of California for 1866, of 14,000,000 bushels, ninety-five per cent. was furnished by eighteen counties, as follows:

COUNTIES.	BUSHELS.
Alameda	1,091,760
Butte	231,041
Contra Costa	620,110
Marin	92,328
Mendocino	180,000
Monterey	184,550

COUNTIES.	BUSHELS.
Napa	624,435
Sacramento	192,170
San Joaquin	1,139,111
San Mateo	420,000
Santa Clara	3,506,000
Santa Cruz	244,577
Solano	2,117,250
Sonoma	581,241
Stanislaus	150,662
Sutter	269,050
Tehama	270,035
Yolo	1,446,579
Total	13,361,699
Other 32 counties	719,053
Total wheat crop in 1866	14,080,752

This wheat district lies within a semicircle of 120 miles, taking San Francisco as the initial point, in counties either on the bay, the ocean, or the San Joaquin and Sacramento Rivers.

The wheat-growing area of the State was as follows during the last three years :*

ACRES UNDER WHEAT CULTIVATION.

COUNTIES.	1865.	1866.	1867.
Alameda	40,051	38,792	53,190
Butte	19,975	21,919	19,070
Contra Costa	28,615	39,718	43,501
Marin	3,260	3,567	4,291
Mendocino	6,500	11,000	12,000
Monterey	3,283	4,983	5,700
Napa	31,156	29,735	37,405
Sacramento	10,142	9,870	5,400
San Joaquin	47,558	69,132	91,790
San Mateo	16,000	20,000	16,000
Santa Clara	93,000	109,000	150,000

* Evening Bulletin.

COUNTIES.	1865.	1866.	1867.
Santa Cruz	6,179	9,629	9,710
Solano	55,500	141,150	160,000
Sonoma	30,465	35,023	27,943
Stanislaus	10,000	11,190	32.250
Sutter	10,640	15,732	21,730
Tehama	7,832	13,424	14,862
Yolo	20,282	47,705	62,877
Total	440,438	631,569	747,719
Other 32 counties	41,034	59,176	98,658
Total for State	481,472	690,475	684,376

"Assuming that these figures (which are taken from the Surveyor-General's Report) are approximately correct, we find that of the strictly wheat-producing counties, the land under cultivation with this cereal, in 1866, was forty-three per cent. greater than in 1865, while that of 1867 was eighteen per cent. greater than in 1866, an increase for 1867 as against 1865 of about seventy per cent. Extending the comparison so as to cover the whole State, there was forty-three per cent. more land under wheat cultivation in 1866 than in 1865, and twenty-two per cent. more in 1867 than in 1866, or an increase of about seventy-six per cent. in two years."

The greatest wheat-producing counties are just around the Bay—eight of them producing, in 1866, 6,053,124 bushels, against 3,144,376 in 1860. Wheat does not do well south of Monterey. It is estimated that 150,000 acres of new land were put in wheat during 1868, and at least 20,000,000 bushels produced. The yield of wheat to the acre was formerly wonderful in California. Fields of sixty to one hundred acres have averaged ninety to one hun-

dred bushels, and choice sites as high as *one hundred and twenty.* Wherever the land is properly sown and cultivated, the yield will now average forty bushels. But here, as elsewhere in the United States, there is a great deal of poor farming. The lands receive neither rest nor manure, and even the straw is burned. What with volunteer crops, and cattle turned in to feed, many farms are almost ruined. Some farmers are beginning now to crop one year and summer-fallow the next. By this means an average yield of twenty bushels is soon raised to forty.

The truth is, such is the improvident habit of the people, that these magnificent grain-fields, which might be the granary of the world, are being rapidly reduced to the condition of the Virginia tobacco-fields. Every year the organic materials of the soil are burnt up in the straw and dissipated. There is little economy shown anywhere, and the yield in many districts has been brought down to twenty bushels. There is an imminent danger that extravagance and waste may desolate the California wheat lands, as they have the gold lands.

The most successful varieties of wheat are the White Australian, White and Red Chili, Chili Club-Wheat, and Sonora. The flour is said to be stronger from these than our "Eastern" wheat. The characteristics of the California wheat are its dryness and hardness, so that the grain requires to be dampened before it can be profitably ground. These qualities peculiarly fit it for transportation. Our millers, however, do not, evidently, understand the grinding it.

I find the California flour in New York often very yellow and inferior in quality, while here it is white as snow and of the best quality.

Owing to the floods in some districts, the wheat crop is harvested in some parts of California while it is seed-time in others.

BARLEY.

The great crop of the State, next to wheat, and the common feed for animals, is barley, which will average, on new land, 55 to 60 bushels to the acre; it has averaged as high as 80 to 130 bushels; and a field of 100 acres, in Pajaro Valley, is reported to have produced, in 1854, 133⅔ bushels to the acre, of clean plump grain. The yield for the State is nearly the same as that of wheat.

Oats grow well in California, but are not in great demand.

Indian Corn does not do well generally, as on the lands liable to overflow (such as most of the river-bottoms) the ground is still covered with water in May; this makes the planting late, and the autumn rains set in before the grain is matured, and the yield is thus light and poor. The best corn lands are in the Russian River Valley (Sonoma County).

CHAPTER XIX.

THE GEYSERS—GRIZZLY BEARS.

THE various excursions through the Bay of San Francisco are remarkably beautiful. The trip to the Geysers — one of the regular objects of sight-seeing in the State — can be made either by Napa or Petaluma. We chose the former route, and enjoyed the steamboat sail extremely. Napa Valley is one of the prettiest valleys in the State. In the spring, the drive is as if through a park, the green fields being sprinkled almost artistically with a variety of evergreen oaks (*Q. sonomensis*), which look like the elm. The hill-sides, and even the intervale, are green with vineyards, or covered with thrifty wheat. On each side of the narrow valley are wooded, rounded hills, very pretty in outline. Even at this season (July), with the dust lying six inches deep in the roads, and the fields as brown as stubble-fields, it was a lovely drive.

We stopped at several watering-places. As I said before, there is something almost pathetic in the immense efforts made to render these places attractive.

The White Sulphur Spring is somewhat romantic in situation, but Calistoga consists of a group of little houses, with a bare common in the midst, on which

some scanty shrubbery was growing, a great warm-water bathing-basin, and a long low hotel. Large sums had been laid out on it. But nothing could be less interesting or agreeable. The thermometer at both these rural resorts remained at from 100° to 105° while we were in the neighborhood. The heat is, perhaps, an attraction to San Franciscans, as one objection to their own climate, they say, is that they can never get up a perspiration.

By a very early start, we reach Voss' Station for breakfast, expecting, according to advertisement, to connect with the "world-renowned Voss' team." But the world-renowned had fallen out with the Calistoga people, and had driven off to the Geysers early. So we were left to spend the day at this interesting station, which is a kind of focus of a reverberating furnace of hills, with a view into a barn-yard and over some brown fields.

In observing the traveling company one meets with on these journeys, I am struck with one fact — that the least gentlemanly persons you meet are foreigners — especially the English. The American or Irish Californian is extremely polite to ladies — truly attentive, though perhaps a shade too familiar; but your young English or French Californian treats a lady almost as familiarly as he would a man, and I fancy he puts on a freedom to which he is not accustomed, and the resulting effect is not happy. One of the greatest civilizing agencies in America, is our respect for woman, and the women of this coast ought not merely to receive it, but to claim it; and any young

foreign prig, who tries to ignore it, should be quietly taught his mistake. There is one peculiarity here which belongs to all our people; it originated with the frontier, and has been transplanted to our cosmopolitan cities—no one ever grumbles at public accommodations. In a new country you must be very considerate of your neighbor, whether he be stage-driver or bar-keeper; if he impose shockingly on you, you must bear it in silence. The consequence is, there is no public criticism on public arrangements. The only corrective is competition. I am of opinion that a little more ill-natured and wholesome scolding on these matters, especially in our Eastern States, would produce a good effect. Here, as a general thing, the country inns or hotels on traveled routes are excellent. But now and then, there is a thorough-going flashy California house, with a most elaborate and pretentious outside, and all the necessary things inside neglected; dirty beds, poor ware, bad bread, and greasy cooking. Such exceptions would be speedily put an end to by vigorous grumbling; but no one ever says a word in public against them.

Voss' Station, however, was not of this class. Small as it was, it was neat and well managed.

The drive over to the Geysers was very interesting; in part being just upon the very ridge of a sharp mountain, the steep sides covered with chapparal coming up on each side to the very edge of the road. There were some fine views of mountain scenery on the route. We drove down the descent to the Geyser Hotel in the most reckless manner,

making the two miles in about nine minutes, and swinging the wagon around the zigzags with a tremendous speed; but the ground is soft, and the wheels could not easily get over the edge of the road. Still, as is well known, there are constant accidents in California from reckless stage-driving. In one part of our route, we saw a plain trail of bears, which crossed the public road.

"THE GRIZZLIES."

One cannot help acquiring a kind of respect for this animal from the stories one continually hears about him in California. I believe, without exception, he is the most formidable animal that walks the earth. Think of a creature, weighing 1,800 pounds, that can run as fast as a horse, and with a strength that would crush a lion as if he were a squirrel, and with such masses of muscle and fat over his vital organs, that it is exceedingly difficult to shoot him. I find very few hunters who have ever even ventured to hunt one. It is said that no grizzly ever attacks a Digger, or a Digger Indian him; they mutually avoid each other's company. It is so with all ordinary hunters. The bear seldom attacks a human being unless wounded, or unless it is a dam with young. Yet I see in the papers constant accounts of terrible encounters with them, in which frequently the human side does not come off the best. One young hunter, I heard of recently, who saved himself after having wounded a bear, by throwing himself on his face and covering the back of his head with his hands. This is a common maneuver; the

bear supposes his enemy dead, and gives him one or two hard blows and leaves him. I saw a woodman in Calaveras, with his eye gone, and much scarred, who had been obliged to fight a grizzly with a pocket-knife, and *killed him.* He was almost torn to pieces, but recovered. One dare-devil feat is, to crawl laboriously into a narrow bear's-trail in a chapparal thicket, where there can be no retreat, and shoot the grizzly in his den.

The weapon the bear is most afraid of, is the lasso, or *reata.* He can do nothing against it. I have known one of the wild Spanish riders to capture twenty in a season with this singular implement. They are also trapped often in little houses, and then transferred to cages. It was thus that Adams caught his magnificent collection. They do a great deal of damage. On this very journey I heard of one ranch that had lost a hundred horses through one.

Among the Sierras, the traveler on horseback need apprehend little danger from them; and a foot-traveler has more to fear from wild cattle than bears.

I am often much struck with the vivid use of new English words in California. I was discussing with a man in the stage-coach some question of morals. "The first thing for a man," he said, "is to live true to his convictions; if he doesn't do that, he had better sell out; *there's no pay-rock in him!*" Another — a clergyman of much *esprit*—I heard speak lately in a sermon, of "the *hard-pan* of character — the *bed-rock* of the man," as if in every man, beneath the detritus

of habits, and the drift of conventionalities, and the loose deposits and accumulations of customs and externals, there was a foundation — a "bed-rock"—of essential character, against which you must strike if you would reach him.

To *corral* a stock is to get the stock into your hands — to "corner" it, as we would say. To "freeze out" stockholders, is an operation I have already explained; and "salting" a mine is a trick also described heretofore

The GEYSER HOTEL is a plain wooden house, near the foot of the Devil's Cañon, which is the great object of interest to travelers. The landlord made up, by good nature and liveliness, for any want of accommodations which might be felt.

The interest of the spot lies in the fact that here may be witnessed the last spent forces of the great volcanic action which once shaped all this coast. One can well believe that the Indians found the Devil's Cañon a most infernal place, and carefully avoided it. Our party climbed to the hill above, became rather belated, and then descended it almost in darkness. It is a small ravine, filled with sulphurous mist, where the ground is hot and quaking, and there is a sound of continual puffing engines beneath your feet. Some of the party became quite confused with the sulphurous odor and noise, and feared every instant breaking through the hot clods into the fiery depths below, or stepping into some boiling spring. With some of the Geysers there was such a force of steam as to be

heard at a considerable distance, and to suggest to our enterprising landlord the device of putting a steam-whistle over the vent, but, for some reason, the contrivance did not work. An egg was boiled in three minutes in one; another, called the Devil's Ink Bottle, boiled over with genuine ink, with which a letter was afterward written. The ground was covered with salts of sulphur, of alum, and charged with various acids, which destroyed our boots in a few minutes. The water was highly charged with sulphuretted hydrogen and sulphurous acid, and many salts, such as sulphates of iron, lime, and magnesia. There was a species of grass growing in the water, though its temperature was at 200 degrees.*

The explanation of these phenomena made in the Geological Survey, and the ordinary theory in books of science, of similar phenomena, seems sufficient. Somewhere above, in the Sierras, water comes in contact with heated lava in some volcano which does not now discharge, or some interior lake of lava, and being formed into steam it is forced out by the pressure, through crevices, until, as steam and hot water, it reaches the stream of this cañon, and finds a vent for itself in these geysers. Hot water, under pressure, dissolves metallic sulphurets, especially sulphuret of iron, and these solutions it brings down from the rocks to this stream. The ink mentioned above is a sulphuret of iron. I am told by residents that the volcanic action is sometimes shown here by quakings of the earth and rumblings. The line of former ac-

* State Geological Survey.

tion is clearly made evident in the mountains by great accumulations of pumice, scoriæ, obsidian and volcanic slag. The surrounding rocks here, however, are metamorphic sandstones and silicious slates. This cañon opens into the cañon of Pluton river, which is a branch of Russian river; it is said to be 1700 feet above the sea. Four miles up are other geysers, some 2,200 feet in elevation.

The Devil's Cañon is a furnace of heat in the day, both from the sun and the ground. The hotel itself was one of the hottest places I ever visited. Altogether the excursion is hardly worth the trouble taken to make it.

The journey back took us through a part of the Russian River Valley—yet to be one of the great wheat valleys of California—and out by the Petaluma Valley.

All these fine agricultural districts are to be opened soon by railways to Vallejo, where wheat and wine can be at once put aboard ships in deep water. This town must become a very important entrepôt.

THE CAPACITIES OF NAPA VALLEY.

This beautiful valley we have just driven through, will be a favorite with emigrants from the eastern coast, on account of the cheapness of its lands and its nearness to market. It is not equal to the famous wheat counties, such as Santa Clara and Solano, and others, in the amount of its yield, but it is more regular, there being few high lands which yield nothing in a very dry season, or very low lands which are

destroyed by a too wet year. Almost every acre of it, except those near the sulphur springs, can produce grain, and the adobe land in the centre has very fair crops.

The lower end, from Suscol to Napa, has luxuriant crops, and the upper looks well. One farm we passed had been let out under the expectation that at thirty bushels to the acre, and with wheat at $1.50 per cental, the lessee would make a net profit of $6.50 per acre. The yield, however, turned out forty bushels, and the profit netted was $10 per acre. Land at the upper end of the valley has been held cheap, though next year it will all be within three miles of the railroad. One farm last year was offered at $25 per acre, and is worth now double.

There are a number of valleys opening into the head of Napa, and all more or less good grain districts—the Loconoma, Coyota, and Knight's valleys. The Russian River Valley is thirty miles long and about five miles wide; its average yield is between twenty and thirty bushels, though sometimes rising to forty bushels.

In Napa Valley there are said to be from 1,000 to 2,000 acres in vines. No good wine, so far as I saw, had been produced there.

THE STATE GEOLOGICAL SURVEY.

I have quoted often in this volume from what may be called the geological memoranda of Prof. Whitney and his corps, contained in the volume on "Geology," which are the only trustworthy sources of information

in regard to the geology and topography of California. Prof. Whitney's geological survey has been, of course, honest, scientific, and so far as it extended, thorough, and will constitute a most valuable basis for scientific theories and practical investigations. The volumes, papers, and maps, also, which have been furnished, or will soon appear, from himself and his able assistants, are of immense value to science.

The survey has been summarily broken off by the California Legislature, leaving, we believe, Prof. Whitney in debt for these public services, he having sacrificed, with a noble devotion to science, something of his private fortune in the survey. For the credit of the State it ought to be resumed and thoroughly carried out.

CHAPTER XX.

WINE-GROWING.

THERE is nothing that California needs so much in developing her material resources as a little truth-speaking. Every one here uses the language of compliment about whatever is Californian. Every traveler or stranger arriving here, falls into the customary style of praise about the wonderful resources of this State, and the result is, that in some branches, the people do not really know what success is, until the unmistakable lessons of the market, or the statistics of trade, teach them. This has been remarkably true of the vineyard interest. Most of the vineyards are cultivated by small vine-growers, who have seldom or ever tasted good wine, and who imagine their own the very best wine in the world. Travelers who write about the country, and journalists and horticultural writers, all agree to flatter and compliment this important branch of culture. Thus Mr. Hyatt, who has written an excellent work on the Californian grape culture, speaks of the "innate fine qualities and delicious aroma which characterize our pure wines." A prominent New York journal also says: "To persons whose tastes have been perverted by fiery, vitiated compounds, which pass in the market for foreign wines, these pure California juices seem at first rather weak, and their delicate aromas and flavors fail of appreciation; but all natural, healthy tastes find in them the requisites of a perfect wine," &c., &c.

Mr. Shaw, an English authority on vine-culture,

reports that "the wines of California offer a fair comparison with those of Europe." This is the general tone of the newspapers and agricultural papers of the State, whereas those who are behind the scenes, the large vine-growers and others, know that the reverse of all this is true; that, *in general*, the California wines have not a delicious aroma—that they are by no means "weak." On the contrary, their proportion of alcohol is the difficulty, and they do not at all compare favorably with the good or light table-wines of France, Germany, or Hungary. In fact, on a broad scale, the wine-making of California has been a failure. The best evidence is in the table of exports. With a climate universally admitted to be the best adapted for grape-growing in the world — far surpassing that of France or Germany — California was only able, out of a product of some 3,000,000 of gallons, to export, in the last six months of 1867, a paltry $63,000 worth, and this was $30,000 *less* than in the same period of 1866. The price, too, in many districts, has reached the low point of 25 cents per gallon, or at the rate of 5 cents per bottle, while French claret commands its 50 cents to $1.50 per bottle. In other places, so small is the demand, it must be converted into brandy to find any sale for it. Even the last report of the Department of Agriculture in Washington, which was expected to say everything complimentary, spoke thus in regard to Californian wines which had been analyzed: "Whatever may be the cause, it seemed unjust to pronounce an opinion upon the merits of wines which were plainly unfit for drinking."

The Committee of the State Agricultural Society thus report, with most honorable frankness, on the wines offered to them, in 1868:

"The Committee would state that they have, in several cases, rejected wines of certain vintages on account of imperfect condition. They considered it was not the intention of the Society to award premiums to sour or adulterated wines, which would only perpetuate a practice of deceiving the public. They regret to state that the exhibit in the Class they were appointed to judge, was most meagre and insufficient for the magnitude of the interests they represented. In wines, in particular, the exhibit was most disgraceful to the wine-growers of the State, there being only twelve entries altogether, a portion of which were imperfect from lack of careful treatment, and adulterated to conceal the same.

"The Committee found evidences of wines that had spoiled being 'doctored' with brandy or pure spirits to conceal the acid smell and taste. In sparkling wines, they found that the same fraud had been perpetrated, the sour wines having had brandy and sugar syrup added to conceal the acid taste. It is by such practices the wine-grower is injured, the entire interest being damaged by the cupidity of a comparatively few persons, to pass off spoiled wines as perfect."

It is well known that Californian wines have lost all reputation in New York, and that they are seldom seen now on gentlemen's tables. In California itself, it is very uncommon to see them on the table, or to find them in hotels. And yet there is no one branch of agriculture which can become so profitable for this State, none which can produce so much in small bulk to the acre at so little expense, and of a nature to be in such general demand, or to which the climate and soil are so wonderfully adapted. In the natural course of things, wines, next to wheat, ought to be the great export of California. There is no limit to the demand, and hardly to her capacities of

production. She could yield three hundred millions as easily as three millions of gallons. I believe, also, among our whisky and brandy-drinking population, the introduction of cheap light Californian wines would be a public benefit. What is, then, the cause of the apparent failure of this most important industrial branch in California?

On first examining the subject, I confess I feared the difficulty lay in some element of the soil or of the grape which prevented the production of a good wine-juice. But it is evident that the most diverse soils are employed in California for wine-culture, and analysis does not show that they differ essentially in character from European soils. Further investigation showed me that the difficulty lay in what has ruined so many enterprises in California—in a moral cause—in what may be called *honesty of work*. There has been no lack of intelligence, and energy, and enterprise applied to this, as to every other branch on this coast, but there has often been a great want of honesty and thoroughness, especially in agents or branches of this business in our large cities. I am convinced that pure good table-wines are made here, such as never reach our market. There is carelessness throughout in the export business. The impression is strong through California that New York cares for nothing but alcoholic, vitiated, and doctored wines, so that one wine is mixed with another to suit our supposed depraved tastes, and the Port is doctored, and the "Angelica" is prepared for us with 16 to 18 per cent. of brandy fretted in, forming, not a wine, but a

liqueur. The casks are often carelessly prepared, thus injuring the wine in the start; the wine is not old enough, and ferments on the passage; then it is badly bottled and corked in New York, or San Fancisco, and sours or depraves; and again, in New York, the Hock is watered, or the wine is mingled with poor French wines, and so palmed off, on our coast, as California wines. The result of all this dishonesty of treatment is, that at the end, we, on the eastern coast, get most perverted specimens of Californian wine. All the leading wine-growers agree that these are some of the obstacles to their business. But there are difficulties, even back of these, on the vineyards themselves. There is a great deal of careless wine-making. I saw one large wine-cellar, owned by a French vinter, which was occupied half as a stable and half as a wine-store, where nothing but a thin partition separated the wines fermenting from the manure of the stable. Any one who knows the sensitive nature of the fermenting wine, can imagine the effect on its quality. There is, frequently, very little care about an equitable temperature for the cellars, and the wine acidifies from the changes to which it is subject. I think no one ever attempts to make a wine from the very choicest of the grapes, as Tokay or Johannisberg is made; everything is thrown in together under the wine-press. Instead of mixing grapes for the press, frequently different wines are put together, which must cause a somewhat artificial wine.

Then, till recently, vineyards have been too much in the rich or adobe (clay) soil of the plains, in-

stead of on the gravelly or volcanic soil of the hills. The mistake, however, is now being rapidly corrected, and the Foot Hills are being covered with vineyards. For a long period, too, irrigation was too much employed, which resulted, in some soils, in too much wood to the vine, and an insipid fruit. Except on the plains of Los Angeles, irrigation for vineyards is now mostly abandoned in California.

The Mission grape, moreover, has been too much the favorite. I am inclined to believe, with some vintagers, that the Mission grape is really nothing more than the old Catalonian grape, brought here by the Spanish *padres*, which makes the sailors' wine of Spain — a rough, strong, heady wine. It is their favorite, because they tried it first, and it happened to succeed. The wine it now yields is precisely of this character — rough, alcoholic, and heady, with a strong, coarse aroma, and in the red variety, tasting of the earth. I doubt if it ever made a good wine in California, and yet there are millions of vines of it. The experienced vintagers are now seeing the necessity of mingling this grape, under the press, with the foreign grape, to give the wine a delicate bouquet and flavor. Some discard it altogether.

The whole science of grape-growing has been necessarily an experiment on this coast. The rules which applied to Europe often did not at all hold here. It was discovered soon that a slight change in soil and climate made an entire change in the wine produced. The best grape for a given locality, and its mode of treat-

ment, were entirely matters of experiment. Everything had to be learned. Moreover, wine-making itself is like bread-making, a fruit of tact and traditional experience. Here all was new in the matter. Then, there was little capital in the business, and the vintage-growers were obliged to put their wines on the market too young, and thus offend the public taste, as they were compared with older wines. But with all these obstacles, and with the dishonesty of agents and dealers, I am convinced that California has produced, and will hereafter produce, such native wines as have never yet reached our market, and which will in time engage in a successful competition with European wines.

CHAPTER XXI.

THE SONOMA VINEYARDS.

THE usual character of the summer scenery in the Californian valleys, as I have often said, is a brown intervale, like a grain stubble-field, sprinkled with clumps of oaks or single elms of dark-green foliage, and bounded by equally brown hills of rolling form, set out with oaks, as if by art. It is only on closer examination that you discover the brown fields to be often wild-oat fields, and the supposed elms, the white oaks, left as nature planted them. Three of the prettiest valleys in the State—the Napa, Petaluma, and Sonoma—have now the additional beauty of green vineyards on the plains and on the hill-sides. Sonoma has the reputation of possessing the neatest and most carefully-managed vineyards in the State. The town of the valley—Sonoma—is a wretched, run-down-looking village, with one of the poorest hotels in the State, sorely needing, as an old Spaniard, GEN. VALLEJO, frankly informed us, an arrival of Yankee settlers to wake it up.

The whole valley, however, is filled with beautiful vineyards, to which is generally attached a neat villa or farm-house. These places are nicely kept, and evidently worked with skill and care. I visited, in company with a most delightful companion and friend, Mr. CRAIG'S, Mr. CARRIGAN'S, Major SCHNEI-

DER'S, the "Buena Vista," and Mr. DRESEL'S. Nothing can surpass the hospitality and courtesy of these California country-gentlemen to strangers.

The production of the vineyards ranged from 22,000 gallons to 43,000 gallons per annum each. The whole number of vines in the valley is estimated at 2,438,000. The soil is a red gravelly clay near the foot of the hills, and a light sandy loam in the centre of the valley; the best wine, as usual, comes from the hills. The usual plan was to plant the vines eight feet apart, each way, so that plows and cultivators could easily pass through them; this would give 680 to the acre. One vineyard found six feet enough, and had 1,210 to the acre. Col. HARASZTHY had attempted a three-feet division on a new theory, but his successor on the Buena Vista vineyard—Mr. DRESEL—had been obliged to take up thousands of his vines, to the great loss of the Society, as this division cost so much in hand-labor, and diminished so much the product. No trenching or manuring is used in California. Here the soil is plowed at least one foot in depth, and then harrowed, and perhaps rolled; it is subsequently cross-plowed sometimes twice, and thus is broken up three or four times during a season, this method bringing the moisture of the atmosphere to the roots, in a climate which has no summer rain. In regard to summer pruning and low pruning of vines in California, there is great difference of opinion among vintagers. The usual method is not to prune during the summer the first year, but to rub off the weaker buds, and in the

autumn, if the vines are intended to furnish layers, to leave two strong lateral branches, and one good stalk with two buds. Every spring the main stems are reduced to two or four buds; some, however, trim in the autumn in preference. Of the layer-planting it is not necessary here to speak in detail. Generally the vines are pruned low—say eighteen inches or two feet; but in northern exposures this subjects the clusters of grapes to too much moisture, and they are allowed a higher growth. The summer pruning is thought by many vintagers to be injudicious or useless, as in this climate there is only too much heat and light, and all the lungs of the plants are needed to absorb moisture. The best vines I saw in this valley were pruned low—like tomato vines—but tied up so that the grapes would not rest on the ground, as contact with it injures them. The squeezing of the buds at an early period, is thought much better than summer knife-pruning. All, it should be remembered, are trimmed down to two or four buds. Vines are seldom staked in California, as upon the Rhine, or trained or trellised, as in Italy, but are left in heads or bunches, with branches five or six feet long—this horizontal training distributing the sap equally, and the leaves sheltering the grapes from the excessive heat of the sun, and keeping the warmth of the earth round the grapes at night. The vines act, too, as a sort of mulching on the surface of the ground, and retain its moisture.

The yield in the Sonoma Valley was often spoken of as averaging thirteen pounds of fruit, or a gallon

of wine to the vine after five years, which would make a product of some 650 gallons to the acre. The Buena Vista vineyard did not average more than 400 gallons, but with 370 acres under cultivation, on a part of which were young vines. I have known, however, 1,000 gallons to the acre, even upon twenty acres, and there are even larger yields. In France and Germany the average is said to be 175 gallons, and in Italy 400 gallons. At 600 gallons it gives a return of, say $240 per acre, and if the wine be of good quality, a much larger one. No other crop is nearly so profitable.

The expenses are variously estimated. Mr. BEARD reckons the whole cost of vines (say $10 per 1,000), of preparing, harrowing, and four times plowing, per acre, for the first year, as about $30.

Mr. HYATT puts the cultivating for vines at $15 per acre; summer-fallow, $5; cuttings, $5 per 1,000; planting, $2 per 1,000; cultivating, $15 per acre, or total $42 per acre.

The general estimate after that for three years is $7,50 each year per acre; Mr. HYATT makes it about $20. On the fourth year there may be a yield of 2,000 pounds per acre, which at two cents a pound would pay two years' cultivation. The fifth year 5,000 pounds may be reasonably expected, and the sixth, 6,000 pounds to 9,000 pounds, the seventh, from 6,000 to 10,000, or even as high as 13,000 pounds. Grapes, however, when sold for wine-pressing to neighboring vineyards will not bring now more than a cent and a-half a pound. In the San Francisco

markets they cost from five cents to ten cents; the most delicate and superb table-grapes, not surpassed in the world, such as the black Hamburg, the Muscat of Alexandria, Muscatel, Malaga, and others, seldom bringing at retail more than eight cents a pound.

Good vine-land, unbroken, can be bought from $5 to $75 per acre. Vineyards of six or seven years of age sell from $100 to $400 per acre.

Many of these vintagers sold their wine near by, carting it themselves. In one case Mr. CARRIGAN had succeeded remarkably in making a red wine from the Zinfidel grape, which was one of the best red wines in California (for in general the red wines here are miserable). For this he received $1.50 per gallon, when four years old. This grape—the Zinfindel, or Zinfidel—is a large bearer. It is said to be a Hungarian seedling of the black Pineaux, or of a Champagne grape of France. It is a highly-esteemed variety. The profits on the private vineyards were evidently large, as they all looked comfortable and well kept, though in general they did not get more than forty cents per gallon for their wine, which is at the rate of about eight cents a bottle.

There was little that was new in the processes for making wine in this valley. It was as nearly as possible like the cider-making in New England; the white wine being the juice of the grapes pressed under a wine-press, and the red wine from fermenting the pulp of mashed grapes, the color coming from the skins; the juice of the latter is then pressed out and finishes its fermentation in a clean cask. The

earthy taste of the red wine must come from some peculiar quality of these skins. In some cases the grapes are passed through a machine to separate the stems from the grapes, and mash them without breaking the seed. The must is run into clean casks, made as pure as possible from all taste of the wood or all previous liquors. The cask is kept in a cool cellar. Fermentation is carried on here with loosened bungs, the gases being supposed to expel the air; but much aroma must thus escape. I have not seen anywhere in California fermentation by a syphon through water, though there are a few vineyards where this is tried.

The cellars in Sonoma are the best in the State, those of the Buena Vista Society being cut in the solid rock, at a very great expense. The others are generally large buildings, like barns, above ground, with thick or double walls. In one, Major SCHNEIDER'S, the temperature is said to be kept within a few degrees of 60° the year round. This gentleman, owing to his wealth, is able to keep his wines some years, and will undoubtedly acquire much reputation for them, because they are not forced on the market too young. Two or three of his white wines are among the best of the State. His foreman derided the idea of the Mission grape making a good wine alone; he uses the foreign varieties, among them, the Rissling, from which the celebrated Johannisberg is made. This grape is a great favorite in the valley. It is thus described: Bunches of medium size and compact; berries light-colored, rather small, and

round; skin thin; flesh tender and juicy, with sweet and sprightly flavor. The White Muscatine is used here also. I suppose from it is made a Muscatel wine by Mr. DRESEL, which is one of the most delicate wines made in California. It has never reached our coast.

The Buena Vista, from various causes, has not paid a profit; perhaps it never will; but I am convinced, under its present skillful superintendence, it will hereafter produce some celebrated wines. Mr. DRESEL, the superintendent, has now some very fair white wines. His sparkling wine I did not taste.

The Sonoma white wines are found, by Dr. WETHERELL, to contain 8½ per cent of alcohol, and the red wines, 10 per cent. The Hock of 1860 had 14 per cent.

CALIFORNIA CHAMPAGNE.

Innumerable experiments have been tried in this valley, in making a sparkling wine. Two methods have been attempted in California to produce the effervescing quality — one by normal fermentation in bottles, and the other by injecting carbonic acid gas into still wine.

The latter is universally considered an unhealthy and illegitimate way of producing this wine. Over two hundred thousand dollars are said to have been expended in vain by various firms — the Messrs. SANSEVAIN BROTHERS, CREVOLIN BROTHERS, and Col. HARASZTHY, and the *Buena Vista Vinicultural Society*, in these experiments.

The following is an account in the *Evening Bulletin* of the difficulties of the latter association:

"In 1863, this association commenced operations by putting up 9,000 bottles of wine, which not proving of a good sparkling quality, was uncorked, put into casks again, and sold for vinegar or distilling. In 1864, they put in 72,000 bottles, from which they sent to this city between 500 and 600 dozen, and uncorked the balance and sold it for the same fault as in the preceding year. In 1865, they put in 42,000 bottles, which fermenting too violently, caused a breakage of over 50 per cent., while a large part of the rest had to be uncorked and put in casks again to save it. This wine was disposed of for the same purposes as in the preceding years, the Society getting very little sound wine from that year's making. In 1866, they put up about 40,000 bottles, which is still in course of manufacture, and from which, and the wine of 1865, the officers of the Society expect to get about 2,000 dozen in condition to market. The wine used in the above-named years was made from the Mission or California variety of grape, grown in the Society's vineyards in Sonoma Valley. The wine, before bottling, was of excellent quality, and every circumstance connected with it promised success in making good sparkling wine. The expert who had charge of the manufacture was considered fully competent to succeed, but the results were unsatisfactory, as above stated.

"In January of this year, I. LANSBERGER, agent of the Vinicultural Society in this city, in connection with ARPAD HARASZTHY (son of Col. HARASZTHY), concluded to engage in making sparkling wine in San Francisco. The latter-named gentleman had gone through an apprenticeship of over two years in the wine cellars of the best champagne wine-firms of Rheims, France, and felt satisfied that the obstacles that stood in the way of successful champagne-making could be overcome. After several trials, with varying results, he succeeded in May, in producing a few dozen of really good wine, which he considered equal, if not superior, to any then made in the State. Relinquishing his agency for the Buena Vista Vinicultural Society's wines, Mr. LANSBERGER removed to Jackson, near Montgomery street, where he fitted up the building for wine-making, which he has steadily prosecuted up to the present date. With the view of experimenting without excessive loss through failure, he has made wine in comparatively small lots, so that if one or more proved defective

in quality, the fault might be corrected without large waste. He commenced in May with a lot of 65 dozen bottles, and up to the first of October, had put up twelve separate lots of that quantity, with the following results: First lot failed to sparkle, and was uncorked; the second, third, and fourth lot progressed slowly, and a large portion had to be uncorked for want of sparkle. The fifth lot fermented too violently, and after about 40 per cent. of the bottles were broken, the rest were uncorked to save the bottles. The succeeding lots proved of excellent quality, and have been disposed of as soon as boxed, ready for delivery. The average breakage of bottles was about 16 per cent. on the amount put up, while the wastage in disgorging made the total loss about 25 per cent. The manufacture of sparkling wines requires the use of good judgment and skill, as the condition of the wine, in its various stages of manufacture, is judged almost entirely by the eye. Skillfulness in shaking bottles, to settle the deposit in the wine on corks, and good taste in flavoring, are also required, and can only be attained by thorough instruction and practice."

The process of making is not essentially different from the French method, except that it is much shorter—for four months instead of ten months—and no refined wine spirits need be added to the wine, on account of its natural strength of alcohol (some 14 per cent.) Artificial heat, too, is used in the early stages of fermentation, by the principal maker, LANSBERGER, in San Francisco; though I think not in Sonoma. White wine, from six months to two years old is used, grape-sugar, or a solution of rock-candy, being added in the casks, and the whole is repeatedly stirred till fermentation begins. Then the wine is drawn off into bottles, which are corked and tied with strong twine, and then stacked in large piles. They are now placed in the heating-rooms, if heat is used.

When the wine has reached a favorable stage, it is restacked, with the heads downward. The sediment

now deposits itself on the side of the bottle. Every day the bottle is shaken by an experienced hand, to bring the sediment down just above the cork. When the wine works clear, the expert very dextrously cuts the twine, and lets the cork and sediment be driven out by the gas; both are caught in a tub, as also whatever wine may be spilled in the operation. The bottle is now passed to the filler and receives the flavoring and sweetening liquid, and any wine needed to fill it; it is then corked by machine, and the cork wired. Afterward the bottles are carefully examined, lest some fragments of glass or cork may be in them, and then are labeled and packed. The wine ought to be kept several months, to improve in quality. The great losses in this business are from breakage of bottles, especially in May and August, when fermentation is active. The expenses, too, in California, are very high, as compared with those of France; bottles, all imported, costing $1 per dozen, and corks $40 per thousand.

The produce, thus far, of California, in sparkling wine, I believe is in sufficient demand at home to need no export; though sample cases have been sent to various countries. It has mainly been made from the Mission grape, but now the Muscatel is being employed for it.

I suppose a hundred different varieties of grapes are being tried in Sonoma Valley.

It is remarkable that such skillful cultivators can give so little scientific information about their wines. Not one knew the proportion of sugar or of alcohol in

their wines, exactly, though some of them had saccharometers. The analysis of Dr. WETHERELL, of the Smithsonian Institute, gives eight and a half per cent. as the percentage of alcohol in the white wine, and one per cent. of sugar when free from alcohol. The red wine has ten per cent. of alcohol, and two per cent. of sugar; while some California wines, as the Port, have eighteen per cent. of alcohol, and seven and a half per cent. of sugar; and the Angelica, seventeen per cent. of sugar and eighteen of alcohol.

The great want in the wine-culture of California, is a light, cheap table-wine. Sonoma, from its cooler climate, and the character of its soil, seems capable of producing this.

In this wonderful climate, the grape thrives to perfection. The total rain-fall in California is only 22 inches, while on the Rhine it is 36.17 inches, and at Bordeaux, 34; in Madeira, 30.87; and even in Malaga 23.3 inches. It is rare to find a year in Germany or France in which damp or frosts do not injure the grapes. Here they are never injured. Rot is unknown, and disease scarce ever attacks the vines.

The mean annual temperature of California is almost exactly that of Cadiz—60°; while the vintage months average 68° in Sacramento; in Malaga, 71°. The advantage here over many countries is, that the summer heat is prolonged into autumn — the mean temperature of Sacramento, in September, being 78° 95′. Sonoma is probably a little cooler, and therefore better adapted for northern vine-growers.

Among all the wines produced in this valley, and in other parts of California, both from the Isabella grape and other varieties, I am surprised at thus far meeting with none which can at all compare, in purity, and flavor, and bouquet, with one Eastern wine—the Sherry made from the Isabella grape by the Brothers ROWLEY, at Hastings-upon-Hudson. The comparison, of course, can only be made with the strong wines, such as resemble Sherry or Madeira. The labors of these gentlemen are a model to all wine-makers. They have experimented faithfully and carefully during some fourteen years, doing their work in a very modest, but very honest manner; not puffing their wares, and not pressing them on the market till they were sure of their quality. Whatever other merits it possessed, they were determined that their wine should be pure and genuine, and the natural fermentation of the grape-juice. No alcohol or brandy was fretted in, or essential oils added, or artificial coloring or ingredients mixed in. The Hastings wine is a pure natural American wine, not exactly a Sherry or Madeira, having its own delicious flavor and bouquet, without the headiness and alcohol of the California strong wines, and full of health and vigor to those needing a vinous tonic.

This result is the fruit of years of quiet, honest work, on a soil infinitely inferior to that of Sonoma or Los Angeles, and with a comparatively unfavorable climate. Not till the vintagers of California work as thoroughly, honestly, and with as much science, will they produce a strong wine equal to our eastern wine.

THE SIERRAS AND FOOT HILLS.

The best vine districts of this State will hereafter be the borders and the sides of the Sierras. It is believed that the whole range of mountains, from Shasta to Santa Barbara, say 25 miles broad by 350 long, is admirably adapted for grape cultivation. The climate, too, is drier than in the coast range. The wines made are generally like those of Madeira and Teneriffe, with a strong per centage of alcohol.

In Nevada County the soil chosen is a volcanic ash, or sedimentary lava, like the soil of the vineyards on Vesuvius, or it is decomposed granite, enriched with potash and soda, and impregnated with oxide of iron. It is not improbable that in the future, wines will be almost accidentally produced in such places, equal to Johannisberg or Tokay.

At present, in the above county, there are only some 130,000 vines; but land is cheap, and the hills will soon be covered with vineyards.

Mr. WAITE states that 8,000 pounds of grapes to the acre, from vines five years old, is not uncommon. The vines need irrigation the first year, but after that, on moist soils, will take care of themselves. The use of a plow or cultivator in summer often supersedes irrigation. The vineyards are small, varying from 100 to 3,000 vines. There is but one with more than 10,000 vines. The French have made here a species of claret; the grapes cultivated are the Mission, Black Hamburg, Muscatel, and Catawba. The wines of this county are generally strongly alcoholic; they are thrown into market young, but bring high

prices, some selling as high as two dollars per gallon, even in cask. In Grass Valley there are numerous vineyards. The best red wine made in the State, resembling Burgundy, I am assured, on good authority, is made at Columbia, Tuolumne County, on the Foot Hills, by Mr. JARVIS.

At Coloma, on the Sierras, the Isabella and Catawba grapes are found to succeed remarkably well. Mr. ALHOFF has distinguished himself with wines from these. There is a single Isabella vine here, trained on an arbor, which bears this year some 2,500 bunches, weighing 1,000 pounds.

At Folsom, Sacramento County, Mr. BUGBEY has succeeded in making the very finest raisins. His crop last year was 25,000 pounds, worth twenty cents a pound. He also made nineteen different varieties of wines. His whole product was 10,000 gallons last year, worth from $1.25 to $2 per gallon.

The following is the analysis of his soil:

Silica and silicates of alumina, iron, and magnesia..	894.50
Alumina and peroxide of iron.....	49.50
Lime	2.37
Magnesia.....	0.21
Soluble salts.....	14.22
	960.80
Organic matter.....	30.00
Moisture.....	9.20
	1,000.00

This is what would be called a poor soil; yet it produces the finest grapes. His red wine, from the red *Traminer*, is highly spoken of.

RAISINS.

Raisins are made by half breaking the stems of the principal bunches of grapes, and thus preventing the flow of sap. The fruit then shrivels in the sun, the watery portion is dried, and the sugar concentrated and increased in proportion. A good grape for this purpose is one of the many Malaga varieties, but a Hungarian grape (*Fifer Zagos*) is preferred. The raisins from this are of a light-red color and white bloom, of medium size, with a thin skin, tender pulp and seed, and a pure, sweet flavor, free from musky taste.* This grape was brought from Hungary, in 1853, and from two small cuttings have sprung 50,000 bearing vines, and some 300,000 cuttings and roots. It is a prolific bearer, and averages in six years thirty to forty pounds to the vine. This vine is usually trimmed, like the other vines in California, as a tomato bush, the main stalk some eighteen inches from the ground. The young wood is staked up about four feet high, and the runners pinched in during the summer, so as to throw out lateral shoots, and thus protect the fruit from the rays of the sun by the leaves.

There has been some discussion whether this grape was not really a Malaga variety, but opinion inclines to its being a Hungarian. A golden-colored wine is made from it, between Sherry and Madeira. The fruit grows in long bunches, and the berries are of oblong shape, light-green translucent color, and varying in size from the middle of the bunch down.

* Mr. DUNN's Report to State Agricultural Society of 1868.

The Muscat of Alexandria has also been tried for raisins, but they are musky, and tend too much to absorb moisture and ferment. The white Chasselas, also, is found not to succeed, the skin being too tough, and the seeds too large and hard, and the pulp not sweet or full enough.

The Mission grape makes a fair second-class raisin. About 80,000 pounds of raisins were produced in the State, in 1866. Before many years California will supply the Union with raisins.

"The Catawba," says Mr. HITTEL, "bears twenty-five per cent. less than the Mission grape, and it requires about two pounds more of the berries to make a gallon of wine, but there is a certain and prompt market at twice the price paid for the wine made of the Mission grape. Mr. ALHOFF sells all his wine, except perhaps fifty gallons reserved for keeping, before it is eight months old. Besides the produce of his own vineyard, he buys all the Catawba grapes he can get from his neighbors. Last fall he paid two cents per pound on the vine, and two and a half cents delivered. He has the handsomest wine-cellars that I have seen in the State. They are fifty feet long, twenty feet wide, twelve feet high, built in the hill-side, and are arched over with neatly cut sandstone. One of his cellars is almost nice enough for a parlor. Mr. ALHOFF says that the Catawba wine keeps far better than any other. He can draw off a 500-gallon cask of it, gallon by gallon, for four months, and it will keep sweet, whereas other wines will turn sour in a few weeks if the cask is not full."

Mr. BUGBEY ranks his varieties as follows, in the order named, viz.: the Black Zinfindel, Red Traminer, White Malaga, Verdelho, and Los Angeles. The Verdelho makes the best wine, and the Black Zinfindel produces the largest quantity of grapes.

In the Foot Hills the Red Mountain and Zinfindel grapes are said by Mr. HITTEL, a most intelligent observer, to bear more than the Mission variety, and the Catawba and Isabella only one-third as much. The Muscat varieties make excellent raisins, but bear twenty-five per cent. less than the Mission grape.

CHAPTER XXII.

LOS ANGELES—ORANGE-GROVES AND VINEYARDS.

THE trip to Los Angeles (some five hundred miles) I made by steamer in about three days—a pleasant voyage in good company. We stopped only at Santa Barbara. The great difficulty of this whole southern coast is the want of good harbors. We anchored at Don Pedro, some twenty-two miles from Los Angeles, almost in an open roadstead, and then were taken in a tug four miles to Wilmington, a place of 1,000 inhabitants, built up by the energy of one man. Here a coach took us for eighteen miles over a flat plain, covered with wild mustard, some eight feet high, to Los Angeles.

The region about Los Angeles may be considered as the "South" of California. It is largely settled by Southerners; it was somewhat secessionist, or at least opposed to the Government, during the war. The people have all the virtues and the vices of that section of our country; they are warm-hearted, hospitable, slovenly, lazy, and profane. Nature has done everything for it, and man very little. The whole region is half a century behind the north of California in its improvements, and yet has a climate, a soil, and a luxuriance of vegetation, and a variety of fruits, which made the early Spaniards consider it the very garden of the angels.

I asked a Catholic priest with whom I was traveling, if it deserved its name. He replied, characteristically, that the Holy Scriptures informs us there are two kinds of angels, the good and the bad, and of the latter he thought there was no want in the place. The name must have been originally applied to the town by travelers coming here in the spring, over the Arizona desert. To them a bit of green must have seemed angelic. FROEBEL'S description of its loveliness, as I recall it, seems highly romantic and exaggerated. It is simply a Spanish mud village of one-story houses, with broad, dirty, hot streets. Beneath the wide verandas the people sit, and two-thirds of the population seem to spend the day smoking in front of the hotel, and going in for "drinks." Without the town are broad roads, which are dusty or cut up with the surface-irrigation, running between large willow hedges, made by sticking willow branches in the ground and interlacing them like a fence; they soon grow and form a thick, scraggy, ugly hedge, twelve or fifteen feet high. And this in a climate where the beautiful pepper-tree makes a superb hedge, and I suppose the cherry-holly would grow luxuriantly. Behind these hedges, however, are the richest gardens, vineyards, orange-groves, and lemon, fig, and olive plantations which can be seen in America. The country beyond these places is flat, brown, and arid, till another green and beautiful plain is reached, watered artificially from the Santa Susanna Mountains, some ten or twelve miles from the town. On a height near the

city is a very pretty view of the Los Angeles Valley, green with vineyards, orange-groves, and willow hedges; it is some fifty miles long by twenty-five broad, and irrigation is supplied by the river of the same name. Between Los Angeles and its seaport, Wilmington, on the other side, are some twenty miles of brown heath, covered with wild mustard. There are certainly scores of places in California far more beautiful.

The town itself has had, till recently, a bad name. It has been the Botany Bay of both California and Mexico. Hither drifted all the cut-throats and rogues of both countries, to be near the border and thus easily escape the law. There have been several Vigilance Committees here during the last ten years; the last one, a few years since, hung five men. Even now, though it contains some 8,000 inhabitants, the town has no gas* in the streets, and I was told by various citizens that they would not cross the plaza at night for fear of robbery. No one rides in the country near by without arms, and there have been instances of the Mexicans attempting to lasso travelers for the purpose of murder and robbery. Probably one-half of the population are native Californian or Mexican, and very slow to adopt any improvement. This is one of the strongholds of Californian Democracy. But American ideas and men are penetrating it. A most energetic and able man—the Republican Senator to the State Legislature, Gen. BANNING—has taken hold of Wilmington, and

* Since then, I understand the city has been lighted with gas made from asphaltum, which abounds in this region.

is building that up, and bringing a great deal of business there. New one-story brick houses are taking the place of the *adobe*. Schools are being improved under an intelligent school superintendent, Mr. McKEE. Law is now supreme, and robberies or deeds of violence but seldom occur. The Spanish land-holders are being stirred up at what they see around them, and are making many improvements. And in the town and country around are some large American landed proprietors, who are exceedingly intelligent and public-spirited. Among them are Mr. KELLER, Mr. WILSON, and M. SANSEVAIN, the largest vine-growers in the State. It seems, however, the misfortune of this region, that the land is held in such large parcels, and but few small independent farmers are to be found. Yet, as promising a speedy pecuniary return, it is undoubtedly the most desirable place for farmers emigrating, in the whole State. The climate is warm, but tempered by a cool sea-breeze, so that there is less suffering from the heat than in some of the mountain districts of the State. Fever and ague seem almost unknown, and there are few prevalent diseases. The nights are generally cool; but even in winter frost seldom does any damage.

One of the finest places I visited was Mr. WILSON'S, a gentleman well known for his hospitality and his large agricultural operations. His estate is some nine miles from Los Angeles, and extends in the plain, beneath the Santa Susanna Mountains, for some ten or eleven miles, containing 14,000 acres of land. The view from the hill near the house is charming,

a plain in front, green with the orange groves and vineyards, and the towers of the old Spanish Mission, (San Gabriel) rising from the rich foliage. In the east, the peak of San Bernardino and the summit of San Gorgonio, and to the north, the fine masses of the San Fernando mountains, some 8,000 feet high. Mr. WILSON'S vineyard contains 300,000 vines, mostly of the Mission grape, wide planted and low-pruned. In this climate, especially near the city, the vine-growers are obliged to irrigate. One field of twenty acres produces some twenty thousand gallons of wine; his whole production is about 100,000 gallons. He makes a white wine, which, after four or five years, is a very fair table-wine. I think the price of ordinary wine here is 35 or 40 cents per gallon.

We saw here a beautiful grove of orange trees, with dark green, velvety leaves, sprinkled with light green branches—the richest foliage to be seen in nature. They were set some twenty feet apart; they bear eight or ten years after the planting of the seed. The full-grown tree can reach thirty or forty feet in height. Twenty of Mr. WILSON'S trees yielded $1,200 in one year. He has about 2,000 orange-trees growing, and nearly as many lemon. There is a great demand on this coast for lemons, even in the mining region, and when the demand is satisfied the juice can be converted into citric acid. Lemons are worth three cents a-piece on the ground, and a tree will frequently yield $50 or $60 in one year. It is easily propagated from cuttings, and will bear in six or eight years. There are two varieties

here, the Sicily and the China. The last, however, is considered almost worthless; it bears a large lemon of a bright orange-color, with corrugated skin, but it is sour, without flavor. Both oranges and lemons are set out widely enough apart to give the matured tree full scope, and the ground about them is kept broken and loose. I think no manure is used. The ripening season commences in December, and lasts till May. Their enemies are the gophers, who gnaw the trunk near the ground, and an insect which hides under the leaf, and smears it with a glutinous matter that injures the plant. On the whole, however, there is little difficulty in raising them. The original Los Angeles oranges are said to have come from the seed of the Sandwich Island orange, but, as usually happens here, the California seed and fruit prove better than the original. Both the orange and lemon of Los Angeles are remarkably good. It is estimated that there are about 8,800 fruit-bearing orange trees in the valley; 135,000 maturing trees, and 200,000 plants. The fruit-bearing are said to average about 2,000 oranges each after eight years, which would give a crop of over 17,000,000, worth some $527,000 for the Los Angeles farmers. Of lemons, the estimate is 500 fruit-bearing, 2,500 maturing, and 35,000 of this spring's planting. A single orchard which I visited afterward — Mr. WOLFSKILL'S — will produce 600,000 oranges this season.

The tendency in California is always to overdo any particular branch, and Los Angeles, alone, will glut the market with these fruits.

I was shown a bush of limes on Mr. WILSON'S place, from which the children had sold $16 worth, and it seemed still full of fruit.

The lime-tree is propagated from seed, and bears fruit in five years. There are estimated to be of limes in this valley 400 fruit-bearing, 1,500 maturing, and 5,000 seedlings.

Of figs, fruit-bearing, 3,500; maturing, 7,000; this spring's cuttings, 10,000. The fig is propagated from cuttings and bears in two years. It yields two crops, in June and in August.

Among the trees on this and other estates here, are the English walnuts, almonds and olives. The walnut is a beautiful shade-tree, and bears in seven years from the nuts. There is always a good demand for the nut. The almond yields from the sixth year, and its fruit will bring thirty-five cents a pound, and can be exported to any part of the world. Its only enemy is a fungus, which attaches itself to the ends of the roots and gradually spreads to the heart of the tree. The olive ripens beautifully, and they are now extracting the oil for market, so that olive oil will become another of the many exports of this rich and fertile valley.

Besides these, peaches, apricots, nectarines, apples, pears, pomegranates, cherries, strawberries, melons, cactus-fruit, and even the palm, grow and flourish in this delicious climate.

It is unfortunately unsuited alone to wheat, which does not seem to grow well south of Monterey—the sea fogs and hot sun causing rust. The yield is only

some ten or fifteen bushels to the acre. Indian corn grows here some ten or twelve feet high, and will bear to the amount of 175 bushels to the acre. Among the strange variety of vegetable products which await the energy of Americans in this favored region, is the castor-bean. The beans are planted two or three in a hill, and then thinned out, leaving one healthy plant to the hill. They require no more work than corn, and will yield often thirty or forty bushels to the acre.

Fifteen hundred pounds to the acre is not uncommon, which is equal to seventy-five gallons of oil, worth, at $2.50 per gallon, some $187—a good return per acre. This plant grows well, also, in the north of California.

All the fields and hills around Los Angeles are covered with the wild mustard, sometimes eight feet high. This produces an excellent mustard, better, many assert, than the European. It is believed that this will eventually be cut by reapers and harvested with great profit. It is thought, also, that various tropical fruits would succeed here, such as pine-apples, bananas, coffees, cocoa-nuts, and even *taro*, from the Pacific islands.

Immense sheep ranches occupy the apparently barren plains and hills without the city. But the terrible drought of 1863 cut off great numbers of cattle which used to sprinkle the heights. It also had the effect of breaking up some of the large ranches, as the owners were reduced to poverty, and were forced to sell their land. I heard of one estate, of

250,000 acres, with 50,000 cattle on it, owned by a Yankee Don, which was thus broken up and sold. There are other large ranches, one, the San Fernando, owned by Gen. PICO, contains 121,619 acres; another, belonging to Messrs. PICO & STEARNS, 56,979 acres; another, belonging to the JERBA family, 62,516 acres; another, the San Pecho, 43,119 acres, and so on with many others. A great part, however, of these immense estates is utterly useless for everything but pasture, and even the good soils require constant irrigation to make them bear well. The riparian and water-claims are a source of incessant litigation and quarrel.

Of the 20,000 inhabitants of this valley, only about one-third are native American.. Yet the immense energy and restless impulse of the Yankee population are gradually but surely driving out the old Spaniards from their ill-farmed or neglected properties. It is rare anywhere in California that you pass a thrifty, well-kept farm, and hear that this is a Spaniard's or Mexican's. As a general thing the Spanish owner has gambled, or drunk, or otherwise wasted his property, or has been passed by his neighbors in competition, or has lost large portions of his ranch by sharp legal practice among the Yankees. On a broad view it is better for the whole country that his wide, half-cultivated, or abandoned farm, should be broken up, even by an oppressive legislation; and, undoubtedly, his own original title was often hardly more equitable or legal than that of the squatters on his neglected acres. Certainly many of the grants

to the Spanish Missions by the Mexican Government, covering square leagues, were made from conquered property, were of the vaguest description, and would inevitably give rise to much litigation. Many were probably manufactured after the conquest of California, by enterprising brokers and speculators. The apparently harsh legislation which required Mexican owners to prove titles before a Land Commission and then the United States Courts, was, on the whole, a public benefit. The policy of every Government should be to treat land as different from other species of property, to use it for public purposes, to encourage its fair subdivision and easy transfer, and prevent its lying useless. Cases of individual hardship and injustice there undoubtedly were, but, on the whole, we believe this legislation in California was productive of good to the whole community.

THE VAQUEROS.

One of the characteristic personages of this region is the Mexican *vaquero*, or cattle-driver, the best rider in the world. You will see him on his high-backed Spanish saddle, girt like a vice about the horse, with the enormous stirrup-leathers, his *reata* of cattle-hide, strong enough to hold a bull, wound around the pummel, with slouched hat and loose, out-stretched arms, cantering along lazily on his wiry mustang, and you would hardly take him for the horseman he is. But let his employer tell him that you want to see him catch a bull, and he is all aroused. The little horse springs under the spur and dashes toward a

herd of cattle on the flat heath; the Spaniard makes for a single bull, who rushes off over the plain; the horse follows like the wind, but not too near—he knows his business perfectly. The *vaquero* hurls the coil, and the horse throws himself back on his hind-legs, with his fore-legs braced forward, like a statue; in the next instant the bull is rolling over in the dust, with his tongue sticking out of his mouth, the noose fast about his neck, and the horse unmoved by the shock. Or tell him to catch that white-and-red bull yonder "by the right fore-leg." The two are off in a cloud of dust, tearing over the plain, the horse evidently enjoying the sport as much as the man. You ride after, and find under a cloud of dust the bull on the ground, caught by the leg you ordered, and the horse, without a word of command, keeping the *reata* just strained enough to prevent the animal's getting on his legs, so that, if necessary, he could be branded. The man and horse seem one. One of the favorite games of the *vaquero* is burying a fowl in the ground, with its head out, and then giving it as a prize to whoever will tear it from the ground, on the full gallop. The feats these fellows perform in dashing, at full speed, down mountains and rough cañons, would amaze any civilized horseman.

It is well known that the great wealth of large districts of southern California has been in cattle. These roamed by the tens of thousands all over the plains; the only way of determining the owners was by driving them together every spring to a *rodeo* on a certain ranch, and having a branding. Here each

owner had his *vaquero*, and lassoed the cattle which were his, branding the calves and those whose marks were somewhat obliterated. The cattle without marks were left with the owner of the ranch on which the *rodeo* took place. With some of the owners this was the only time they saw their property through the year, until they slaughtered them; many not knowing within hundreds or thousands the numbers of their "stock." The brands, both of cattle and horses, are matters of legal description, and are controlled by law in California, copies, burned in leather, being required to be deposited in the County Recorder's office. On such occasions as these *rodeos*, the *vaqueros* were the great characters: hunting, lassoing, capturing cows, and struggling with bulls, and separating the armies of cattle.

Besides Mr. WILSON'S, I visited Mr. KELLER'S and M. SANSEVAIN'S, and the Wolfskill vineyards. Each of these will make this year about one hundred thousand gallons of wine. Mr KELLER is an exceedingly intelligent wine-grower. He is trying M. PASTUER'S experiment of heating the strong wines, after the vinous fermentation, in order to preserve them. His "Madeira," a very pleasant sherry-like wine, with an acid taste, is prepared thus, in a chamber heated to (I think) over 113 degrees. I should fear the effect of this process on the flavor.

The making of wine usually begins here early in October. Most of the vine-growers still press with the feet, employing Indians for the purpose, fearing to mash the seed in the ordinary press; but Mr. WILSON, and KOHLER & FROHLING, use presses. What-

ever disagreeable effects might result from treading out grapes with these dirty Indians, are all removed by fermentation; still it is a useless and antiquated method. With the white wine, the pulp is removed so soon as pressing has ceased, and the must let off into great casks or vats; with the red, the juice is left on the pulp for a week or more, and thus acquires its red coloring. Some vintners leave the grapes on the vine till they are shriveled, and thus produce a strong red wine, like Port; but all the red wines are poor.

The "Angelica" is usually made by mixing one gallon of grape brandy with three of grape juice, fresh from the press. The brandy retards fermentation. Another method is to reduce the fresh juice about one-fourth or one-fifth by boiling, then place it in barrels and "rack" it off once or twice, till it gets clear. The boiling also checks fermentation. It is really thus a liqueur and not a wine. It contains at least sixteen per cent. of alcohol; and "Muscatel," a similar liqueur-wine, nineteen per cent.

"Port" is made by pressing the grapes, skins, and stalks, and when the wine is half fermented it is transferred to large casks. Brandy is sometimes then put in to check fermentation. But the California grape-juice has so much alcohol that not much brandy is "fretted in." The color is mainly due to the skins. I am not aware that elderberry-juice is added to give color, as in Oporto. All this class of wines in California are poor and very alcoholic, the per centage in Port being eighteen at least.

Mr. KELLER'S "No. 4" white wine is one of the best white wines here. The "Cocomungo" brand is made on a Spanish vineyard near Los Angeles, and commands a high price, but it is not a remarkable wine. A fair "Sherry" is made here by Mr. KELLER, and others, but not equal to the New York Sherry.

The Los Angeles wines are not equal, on the whole, to the Sonoma, and all the arrangements of their vineyards are inferior. Their cellars are much poorer. A German settlement (of which I shall speak presently) a little south, on a much inferior soil, has already surpassed them in a white wine—the Anaheim, which is a light, pure table-wine. The Mission grape is used everywhere here, but M. SANSEVAIN is already introducing foreign varieties with great success, and most of the vintagers doubt the value of the former. Nothing could surpass the Malaga, Muscat, and Black Hamburg grapes on this gentleman's vines.

All the vineyards and orchards are copiously irrigated, which is contrary to the custom of the rest of the State.

It is a great pity that so much of the wine-making of California has been directed to what are not strictly wines, but are *liqueurs*, or, rather, *vins de liqueur*. Any wine with an arrested fermentation, and with brandy put in, is a dangerous drink; heady, trying to the stomach, laden with gout and other diseases, and tempting to drunkenness. Whatever healthy qualities a light wine may possess, and however it may conduce to temperance, these *vins de liqueur* act immediately in the opposite direction. It should be understood

by the public that the California Angelica, and Muscatel, and Port, are beverages of this description. Their fermentation is arrested either by boiling or by pouring in brandy. The Muscatel of Los Angeles tastes like a cold punch. The Port is perhaps no more dangerous than the wine of the Old World made in a similar manner, yet it seems rougher and more alcoholic. The Angelica corresponds in its two kinds to the *arropé* of Spain, and the *geropiga* of Portugal.

One vineyard—that of KOHLER & FROHLING, in Los Angeles—makes it in a somewhat different manner from that pursued by many other wine-growers. They allow the must to ferment to a small degree for a few days, and then put in the brandy. They claim to have reduced the proportion of alcohol to only fifteen per cent. in Angelica, and to considerably less than that of the ordinary Port in their Los Angeles Port.

The great wonder is that NORTON'S Virginia Seedling is so little known in California, where almost every European variety of grape has been successfully introduced. No red wine has ever been produced in America equal to that made by the Germans of Missouri from this grape.

A remarkable evidence of the bad name of the Californian wines was recently offered in San Francisco, by a cellar full of choice wine—the Gerke wine—as good an article as they have ever exported, which had been sent to New York, and was offered there at a low price—I suppose three or four dollars per dozen—and *could not be sold*, so that it had to be returned. It was retailed in San Francisco at $12 a dozen!

The wine-sellers can buy their wine on a California vineyard from 35 cents to 47 cents a gallon; all expenses for freight, casking, leakage, etc., to New York, are only some 35 cents (gold), so that they can lay down their wine in a New York cellar for a dollar (currency) a gallon, or about 20 cents a bottle, and sell it to dealers at $2.25 a gallon, and by the box anywhere from $6 to $12 or $15 a dozen.

One of the greatest expenses in California are the casks, as the country has no native ash or oak adapted for these. The largest wine-maker in California told me that he would give a cask full of wine for every empty cask; but this was in a district where casks were especially costly.

In speculating over the apparent inferiority of California wines to European, I have wondered whether the defect could be in any degree due to climate. It is well known that the grape from which Sherry is made, if transplanted to the dry climate of the Cape of Good Hope, produces a very different and an inferior wine to the famous wine of Xeres.

May not the dry and warm climate of California act on the grape by intensifying the essential oils, which are at the base of odors, and thus produce the peculiar and not agreeable bouquet which distinguishes all these wines? It would seem as if the acetic ether were the strong peculiarity of this bouquet. We know that all odors and oils are strengthened by this wonderful climate. Thus the mustard is said to be stronger than the European mustard, the hops have a more astringent quality than our Eastern hops, and I

have myself observed the odor of musk in certain grapes almost as strong as if it were an animal product. It may thus be that some one essential oil which is formed in all wines, is here intensified and becomes the prevailing property.

I throw this out merely as a suggestion. If it be a fact, the inventive genius of the Californian cultivators will no doubt eventually overcome even this obstacle.

In looking to foreign countries, one unfortunate analogy suggests itself; the country most resembling California in climate and productions, is Syria; and yet Syria, though abounding in the most delicious grapes, has never produced a first-class wine, unless we except one preserved in a convent in the Lebanon.

Los Angeles is not deficient in some of the appliances or aids of civilization, despite the rather Mexican air of the town. There are two or three respectable hotels, three or four Protestant churches, a Roman Catholic church, a number of primary and grammar and private schools, hospitals, a school and home of St. Vincent de Paul, and two newspapers. The churches, however, are said to have but little influence, and even the police do not control the bad elements, as would be desirable.

A friend of mine, a well-known doctor, said he was crossing the plaza a moonlight night, when a Spaniard met him and asked him for "a light." He observed that the man's right arm was behind him,

and that the moonlight glimmered on cold steel. He politely took out a revolver, put his cigar in the end, and presenting it to him while he cocked it, said most suavely, "With the utmost pleasure, Señor!" The ruffian vanished rapidly.

The most charming feature of the valley is the climate, the spring being like the summer of Madrid, or 74°, and the summer cooler than that of southern France, or about 67°, with an autumn of only 56°, and a winter like that of our southern coast—say 50° mean. The following table is quoted by an intelligent observer in the *Evening Bulletin* of San Francisco, as a record of the five hottest days in 1852:

	Sunrise.	Noon.	Sunset.
August 26	65°	84°	67
August 27	65	84	67
August 28	64	84	67
August 29	65	83	66
August 30	65	83	66
August 31	64	82	65

During my visit, in August, the thermometer was about 80° in the middle of the day, but I was glad of blankets at night. At a little distance in the interior the heat increases fearfully. Here, it is said, field-work is done from January 1 to December 31, by laborers in shirt-sleeves. The rainy season begins in November, and lasts three or four months, but the rain-fall is not heavy; at one point near Los Angeles, the Ranche del Chino, the annual fall being only 9.7 inches. On the whole, however, I do not believe it is an invigorating climate, and for a Northerner, the north of California would be preferable.

ANAHEIM.

Some twenty miles south of the foot of Los Angeles, the Germans have a beautiful little settlement of vineyards, among lately-planted orchards of oranges, figs, almonds, and olives, called Anaheim. It was founded by an association of Germans in 1857, the land—1,100 acres—being divided into fifty lots, of twenty acres each, having a portion in the centre for public improvements. Eight acres in each lot were planted with vines. The whole cost was $70,000. Each vineyard was then sold at $1,400 to German vine-growers. From four to eight additional acres to each vineyard have been planted with vines.

I had much conversation with the managers, and tasted the wine. They have not the best soil for a rich wine, and they are obliged to irrigate much, which must weaken the quality of the grapes; still, they have produced an unusually pleasant and light wine, the only one I saw which seemed to circulate through the State. I found it even in the Sierras, where it was sold at $1.00 per bottle. It cannot be stronger than an ordinary Rhine wine. I attempted to bring a box over the Isthmus, but it soured.

Such is the bad reputation of all California wines, that this year, out of 400,000 gallons manufactured by this colony, 250,000 are still in bond, and the price ruling on the vineyards is twenty-five cents a gallon, or about *five cents a bottle*. There will be 100,000 additional vines bearing in 1868, so that, despite the tax, the wine will have to be converted into brandy,

which is a misfortune to the whole region. And yet the Anaheim wine-growers cry aloud for the reduction of the brandy tax. Many of these are now burdened with heavy mortgages, and some are entirely discouraged by the results of wine-making on the Pacific coast.

CHAPTER XXIII.

THE OIL-WELLS—THE MAMMOTH GRAPE-VINE.

I WAS aroused one morning from my state-room on the coast steamer, near Santa Barbara, by a strong smell of kerosene, and supposed that the room-lamp had been knocked over, but at the same time I heard something said about "oil on the water," and went up on deck. To my surprise, I found the sea for miles covered with floating oil, which had the exact smell of petroleum. We were then some two miles from land. There was considerable swell on, but the captain said he had seen the sea as smooth as glass and covered with oil for miles at this point.

I felt that I had now run through with all the California experience. I had waded in silver mud in the mills at Virginia City, bathed in streams turbid with golden sands in the Foot Hills, and now sailed over petroleum seas near Santa Barbara. It was this phenomenon, it will be remembered, which gave the first impulse to the excitement in California about petroleum, and resulted in the formation of several large petroleum companies a few years since. Any one who recalls the *furor* about Pennsylvania oil-wells, where the superficial indications were often far less encouraging to an unscientific eye, might well excuse the excitement in regard to this region. A very

trustworthy gentleman also informed me that he had often known of cattle mired and lost in a substance on this coast which looked like thickened petroleum.

Under the light of present experience, a scientific man would at once say that the presence of large masses of asphaltum on the surface, or even of flowing oil, was a presumption against the existence of much petroleum oil at that point. Oil fit for burning is not obtained when the strata are exposed to the air, or turned up on edge, or are only covered with a light detritus. There must be a superficial covering of rock over the oil-stratum, to confine the fluid, or to allow it gradually to form away from the atmosphere. This is always the case in Pennsylvania. The strata there are generally horizontal or turned up at a slight angle. The facts in regard to this cast seem to be that a bituminous slate-formation extends from Los Angeles to Cape Mendocino, with the strata generally turned up at a high angle.* The contortions of this slate near Santa Barbara were very marked. The asphaltum is often in the sandstone over the bituminous slate, as if it had been forced up by heat and pressure. In the slates themselves, as we learn from Prof. WHITNEY'S report, it is somewhat uniformly diffused. The precise relation of asphaltum to petroleum is uncertain; whether it arises from the thickening or oxydization of that oil, what proportion of the hydro-carbons in the bituminous slates evaporates on exposure, and what is oxydized to asphaltum, the Geological Survey agree is an entire matter of

*The State Geological Survey.

uncertainty. The only thing clear is, that the strata near Santa Barbara are too much exposed to the air to allow of much petroleum near the surface, and that the oil which is extracted is too thick for practical use. I could not doubt, from what I heard, that pure petroleum does sometimes come forth from some of the borings, but at such a depth and under such expense that it does not pay, commercially. Labor, machinery, and transport, are so high in this part of California, that, with the present price of oil, it is doubtful if a full-flowing well of oil would pay much profit. Some of these large oil-ranches would make excellent vineyards.

Santa Barbara itself has one of the most beautiful situations in California, placed in a green valley opening out to the sea, between picturesque hills on each side, and with a fine chain of mountains in the background. The grand old Spanish Mission seems to stand guard over it, upon the hills behind.

Near the landing, in a gentleman's garden, is a beautiful product of the south of California—the Century Plant, or *Agave Americana*. It was planted eleven years ago, and its great leaves cover a circumference of some sixty feet, while its top is some forty feet high. It is in splendid flower. These *magueys* grow freely here, and will make fine hedges. They are indigenous in San Diego. An intelligent botanical authority in the *Bulletin* says:

"When the maguey in Mexico is in large forests, and at the time the capsule and column dries up, nothing can exceed the monotony

and tristeria of a forced journey through its precincts, from its long, ghost-like, bleached columns, full of hundreds of fruit-vessels, shaking and rustling in the winds of the arid *mesas* of that country. The small maguey of our State, called *kihote* by the natives, and which bears on its column hundreds of snow-white blossoms, has been planted in several gardens of Santa Barbara since 1865, but none of them had flowered in 1867. They are said to mature in five years in these districts. As this plant is found in the inner ranges of Contra Costa, there is no doubt it could be grown in the Oakland gardens."

One of the most formidable hedges in the State is the cactus, which grows here some twenty feet high. I attempted to eat the fruit—the *puna*—without sufficient warning or preparation, and filled my mouth with the minute thorns. The Mexican gathering it used leather shields for his fingers in handling the fruit. It had a sweet, watery taste, and is greatly prized here; but to a Northerner, the tropical and semi-tropical fruits are far inferior in delicacy and flavor to northern fruits.

The pests of this region are the various ground-rodents, the gophers, field-mice, and ground-squirrels. Whole fields are stripped by them of grain, and orchards of oranges and other fruit destroyed. They can only be exterminated by poison. I know one farmer who spends $250 per annum on strichnine and other poisons, for these burrowers. The dry summers enable them to bring to maturity their numerous offspring.

The old ignorant warfare against *bees* has been commenced here, the vintagers believing that these industrious little creatures destroy their grapes and ripe fruit. The increase of this insect is one of those striking evidences which California so often presents,

of the enormous production of one form of life, when once introduced to this genial climate. Before 1853, not a honey-bee had ever crossed the Sierras or Salt Basin to the Pacific slope (which in itself is a somewhat singular fact). A Mr. Shelton in that year introduced the first hive. Even in 1857 a hive would often sell for $100 or $200. The bees increased so rapidly that the business of bee-producing soon ceased to pay, and the insects took flight to the mountains and forests. Now all the woods and hills of the State are full of wild bees, and the Mexicans and hunters get their wax and honey for nothing.

A one-year hive will often produce thirty pounds of liquid honey, and two pounds of clean wax; and a single family, says a good authority, will often throw off *ten swarms* annually. In no distant time, honey and wax must be one of the exports of the south of California.

One of the great plagues throughout California to the cattle-breeder, is a species of mullen—the teazle-burr. Each plant is of the size of a blackberry, and contains some hundred burrs, which adhere continually to the tails and fleece of sheep and to cattle. It covers here thousands of acres, and is a perpetual torment to the cattle-breeders. The woolen factories in San Francisco have distinct machinery for crushing and combing out these burrs.

Despite the destruction by the fearful drought of 1862, both among cattle and sheep, there were in 1867, in this county, 11,090 head of horn stock, and 104,000 sheep; and in land, 46,000 acres were under

cultivation. The grape-vines numbered 230,000; olive-trees, 11,100; walnuts, 7,400; almonds, 8,550; and figs, 2,200. In silk-worms, the crop for 1867 was some 400,000 cocoons.

There have been sales recently of large ranches around Santa Barbara, which will give an idea of the prices of land in Southern California. Thus two ranches, the old Noriega Rancho of San Julian, of eleven leagues, and La Epada, of two leagues, covering 53,000 acres, sold together for $83,000, or say at $1.25 an acre; much of it excellent pasture-land, and some being good arable soil. One-half of Sonata, or 13,300 acres, brought $8,000, and so on with over 130,000 acres, the most of it being sold from $1 to $2 per acre, though some brought from $8 to $10. There were also sold about 1,000 acres of a farm of Mr. Hill, the old Mission garden lands, capable of producing olives, almonds, oranges, lemons, figs, cotton, tobacco, hops, beans, and corn—in fact almost every fruit and vegetable, near a beautiful sea-beach, and at an average price of *fourteen dollars* an acre.

The production of butter and cheese is increasing here, and there are now some cheese factories near the town.

Among other productions, *okra* and sweet potatoes are grown very successfully in Santa Barbara.

One of the wonders of California is a mammoth grape-vine at Montecito, near this place. It was planted by a lady, Doña DE DOMINGUEZ, over sixty-five years ago, from a slip which she had cut in Monterey County for a horsewhip. It is trained on a

trellis about ten feet from the ground, and now covers a space, as I measured it, of ninety-three feet by about fifty. The circumference of the trunk, five inches from the ground, was three feet and a half inches; and eight feet high just below the branches it measured four feet and three inches. It bears about eight thousand pounds of grapes per annum, and is said to almost support the family which own it. There are several vineyards in this region, also, and many groves of orange, lemon, olive and almond-trees. But here, as everywhere, the Mission grape is too much in use, from which a good wine can seldom be made.

The people are very anxious to be relieved from the tax on native brandy; but I trust that they will not be by the coming or any other Congress. No article is a more legitimate subject for taxation; it is mainly a luxury, and a deleterious one. If not taxed, much of the wine of the country will be turned into it. On the much-disputed question of the influence of light wines as checking intemperance, I have no doubt, from much observation of wine countries, especially of Hungary, that they act on a broad scale in this direction, though naturally with many exceptions. But truth compels me to say that thus far native wines in California have had no such desirable effect; perhaps, first, because light wines are not much made here; and second, because Californians do not drink their own wines if they can help it. Here and in Los Angeles, where wine could be sold at a profit for ten cents a bottle, no person in the hotel or on the boat called for wine at his meals, but instead, immediately after,

every one rushed to the bar for raw whisky. With such habits, dyspepsia and indigestion are naturally common.

Such is the sluggishness of this southern population in California, that in a country, the most blessed by nature in the world, they do not raise enough wheat for themselves, and have not a single flour-mill. Our steamer brought a quantity of flour for the town, and had to land it in boats after a very tedious fashion, no one in Santa Barbara having had enterprise enough to employ a lighter.

The want of good harbors for these southern towns is a great obstacle to their progress; but a greater is the want of what the people call "live men." The most energetic man on the whole coast is, as I mentioned before, Gen. BANNING, of Wilmington.

One vigorous and interesting experiment, however, is being made here by Messrs. PACKARD & GOUX in silk-worms. They have 4,000 thrifty mulberry-trees, and 6,000 more are planted near the town from their nurseries. The produce this season is about 300,000 cocoons of excellent quality. Everything promises success to this important experiment.

With all the social drawbacks no part of California offers more material inducements to the farmer and horticulturist than does this southern section. Good land can be bought cheap anywhere from $2 to $50 an acre, according to location, and everything, almost, that man wants, can be produced upon it—every fruit or product of the semi-tropical and temperate zones

The climate is healthy; there is regular connection by daily stage in seventy-two hours with San Francisco, and a tri-monthly steamer in forty-eight hours. The Southern Pacific Railroad will eventually pass here. The country only needs more Yankees to be the best part of the State.

In regard to the great question of temperance in this State, it seems to me unwise for the moral community to throw itself into a struggle with such an important horticultural interest as vine-growing. California is as certain to be a vast vine-growing and wine-making State as France. All the conditions of its soil and climate point to this as one of the most natural and profitable branches of production of the State. No moral opposition could sensibly affect it. Furthermore, the drunkenness of the State (which especially in the mining towns and in the south is lamentable), does not come from wine-drinking. It is the result of heavy drinking of brandy and whisky. Now, assuming the universality of this appetite for alcoholic stimulus, and admitting (as most are ready to do) that a light wine is healthful and promotive of digestion, would it not be the part of a wise legislator, and even a moralist, to endeavor to check the heavy drinking by introducing or encouraging the taste for light beverages? Would not temperance in a wine country, such as California, be best promoted by inducing the vine-growers to make a light, pure wine, and by discouraging the use of brandy and whisky? To expect total abstinence in a country where wine

is thirty-five cents a gallon, seems almost as absurd as to inculcate it at Bordeaux or in Johannisberg. The increased use of brandy can at once be checked by Congress continuing the Internal Revenue Tax. And instead of petitioning Congress for its removal, all public-spirited Californians should unite to request its continuance. A pure light wine can be made if the public demand it. Any effects on the people, from such a course as is proposed, must naturally be distant, but it is the coming generation that alone can be influenced by true temperance. Wine will never take the place of whisky with old topers. But, on the broad scale, we may reasonably believe that the use of light wines in California will in future years promote self-restraint in drinking, as it has done in Hungary, Germany and France, as compared with Sweden, Scotland and England, where these wines cannot easily be obtained. Thus far, as I have before remarked, California gives us no data for conclusions. The course of all reformers and friends of the public good here on this question must be shaped by experience elsewhere. That points, it seems to me, in but one direction.

On the argument made by the vine-growers, that the refuse or pomace left after the grapes have been pressed, must be turned into brandy, and that this, if untaxed, will give them sufficient profit to enable them to sell cheap light wines, but that otherwise they can not sell cheap wines, the following remarks are appended, made by the writer in a city journal.

"It is well known to all wine-growers that the substance left after the grape-juice is pressed out — the *pomace*—is not fit to make even common brandy. It does not contain sufficient alcohol, and has a rough offensive flavor. The consequence is that whisky, or rectified spirits, have to be added to it, and when distilled, a most villainous compound is formed, which acts especially on the coating of the stomach and the nervous system. Physicians say that more *delirium tremens* is caused by this cheap pomace brandy, which is sold under the name of 'French brandy,' than from almost any other cause.

"If to doctored Ports and, in New York, watered Hocks and brandied Angelicas, were added the poison of pomace brandy as a California product, the last end of the California wine-trade would be reached. The difficulty with the wine business of California is not the expense of production, nor the low prices ruling. Even with wine at 50 cents (gold) a gallon, on the vineyard, the wine-growers could make money enough. The trouble is that such is the bad reputation of the California wines for impurity and carelessness of making, that the public *do not want them at all*. As the California papers admit, there are hundreds of thousands of gallons now in cask on the different vineyards which cannot be sold at 25 cents a gallon. The real fault has no doubt often been with the wine-merchants, and with the New York agents, but often also on the vineyards. The true remedy is not to produce a poisonous and cheap brandy of the grape-refuse, but to *make better wines*. If the California wines were what they ought

to be, millions of gallons could be profitably sold here.

"We consider brandy a luxury, and a deleterious luxury, and therefore it should pay a heavy proportion of the national taxation, and we trust Congress will not lighten its burdens for the Pacific States."

SANTA CLARA VALLEY.

The Santa Clara Valley, in which San Jose is situated, is a lovely valley, highly cultivated, and with one of the most delicious climates in the world. The moist and *adobe* soil of the center of the plain, however, is not the best for producing a good wine, though it is green with vineyards. The best wines are made on the red clay, mixed with gravel and limestone, on the neighboring hills.

I visited a number of large vineyards here; some are for sale as low as $1.25 per acre. The wide-planting is becoming the practice of the State, but Gen. NAGLEE, who has a superb place here, is trying the narrow system—the three-feet division. So far as I saw, no really good wines are made in the valley; all were rough and heady. The Almaden hills may yet produce, however, some fair white wines. The county is estimated to have 1,000,000 vines. In examining such a place as Gen. NAGLEE'S, one sees what a satisfaction there must be in California in setting out grounds. Such shrubbery is not to be found in the world; such numerous and beautiful varieties. On this place there were shrubs from Japan and China, trees from Australia, evergreens from this coast, and

flowers and fruit from every climate, all flourishing as they can nowhere else in the world. It really repays to garden in California.

NEW-ALMADEN MINES.

I visited, while in the Santa Clara Valley, the famous quicksilver mines of New-Almaden. They are about thirteen miles from San Jose, on a range of hills some 1,500 feet above the valley. The rocks in which the cinnabar is found, are magnesian schists. We ascended to the opening of the mine by a carefully-graded road, some three miles. Here half a dozen of us were put on an ore-car, and pushed by hand through a level some eight hundred feet long, into the center of the mountain, where we entered a large chamber, made by the removal of the cinnabar. From this a vertical shaft descended nearly three hundred feet. The lower part of the mine is reached by ladders in various openings or cavities, which communicate with one another by narrow passages. The bucket is also used for descent. One of these descending passages is forty feet high and seventy feet broad. The galleries are frequently heavily timbered, to sustain the rock above.

Owing to the low price of quicksilver in the markets of the world, the production is by no means so extensive here as it has been. I believe a large portion of the laborers were then out of employment. The ores are usually extracted by contract, the price paid being from $3 to $5 per *carga* of 300 pounds. The laborers are mostly Mexicans.

The mercury is extracted from the ores by condensation. The only preparation is breaking them by hand, in order to remove the unproductive rock. They are then thrown into brick furnaces, capable of holding from 60,000 to 110,000 pounds. The chambers are heated from a furnace on the side, with wood fuel, and separated by a wall of brick pierced with openings. The product of combustion is forced through alternate chambers above and below, until all the mercury is condensed. The furnaces are built on double arches of brickwork and plates of iron, to catch all falling particles of the metal. Formerly, much was lost in the earth.

The metal begins to run in from four to six hours after the fires are lighted, and in about 60 hours it is discharged through the various condensing chambers into large kettles, where it is all ready for market.

The total product of this mine, in 1865, was 47,078 flasks, or 3,604,465 pounds of quicksilver. The export during the last six months was 12,716 flasks, worth $423,290, or a decrease of 5,711 flasks, and of value, $253,102 since 1866. Of these 12,716 flasks some 9,000 were exported to South America.

The whole landed estate of the company is over twelve square miles, of which about one-third is mineral ground. There are over 400 buildings and workshops on the property. The New-Almaden mine is now, we believe, the largest quicksilver mine in the world.

CHAPTER XXIV.

THE AGRICULTURAL RESOURCES OF CALIFORNIA.

MOST people who come here from the eastern coast, and who think at all on the matter, are inclined to depreciate the resources of California. This is certainly the tendency among scientific men. It is partly the result of the exaggerated claims made by Californians, and the universal flattery which is employed toward them and their State in public addresses, so that thoughtful persons come to doubt that which is so loudly boasted of. Then the first aspect of the State, especially in summer, is not encouraging; the brown and burnt hills, and the dusty roads running through wide sections of her apparently barren plains, seem to promise anything but plentiful harvests, or agricultural wealth. Moreover, there are great obstacles apparent which seem certain to impede a rapid development in the State. One is the want of good coal, which is a necessity of life in industrial progress; another, the liability of the country to excessive drouths, which destroy both cattle and crops; and most of all, the vast distance of the interior from large markets. To these must be added the high price of labor, and the extravagant habits induced by gold-mining and its gambling successes, so that production becomes very costly, and could hardly be expected to compete with the closely-managed and eco-

nomical production of the Eastern coast, or the productive agriculture of the central West.

Moreover, capital has been scarce, and commanded immense prices, owing to expected profits in the mines, or the sale of city real estate, so that large production, demanding borrowed capital, in agriculture and manufactures, could hardly have been looked for.

With all these obstacles and natural impediments, however, California has entered on a career of development which, in another decade, will astonish the Union. I fully believe there is no such creation of wealth going on anywhere else in the United States, and that nowhere else in the world is there so great a proportion of savings to each producer.

And yet, thus far, there are no railroads to open thousands of fertile valleys, and only about half the population of New York city and its suburbs to work all this great territory. The expectations from the Pacific Railroad among the people are greatly exaggerated. It can never be a line of through-freight, except in small and valuable parcels. For all her great products, California will be no nearer market than before. But there will undoubtedly be a great local market opened in the mining regions, and perhaps even as far as Salt Lake, so that the western half of the continent will be fed and clothed and supplied with luxuries from the Pacific coast. But the great advantage to California from this important route will be the supply it will afford of cheap labor. A laborer may be landed in San Francisco from New York for $40 or $50, and wages will at once find

their level on the two coasts. Production, then, will be immensely cheapened throughout the State. The want of labor, thus far, has been marvelously supplied by an accidental immigration from the far East, of the Chinese. Without these useful workers, California would at this day be scarcely more than Nevada—a great mining-ground, whose wealth all flows away. Few manufactures would have been started, or large arms worked; the rich would have emigrated, the export of wheat have never commenced, and the Pacific Road could not have been built over the Sierras. With Chinese labor and the immeasurable advantages of climate, the Californian farmer is able now to compete in the markets of the world with the farmers of Illinois and Indiana, and the peasants of the Black Sea, though his distance from market may be some 10,000 miles or more.

It must be remembered that nature gives the cultivator of the ground a great start here over his competitors in foreign countries. The farmer need seldom shelter his harvest; he leaves the grain-stack in the open air, assured that until November it will escape any rain. He is saved the expense of large barns and the carrying the crop to and fro. He need be under no hurry in harvesting, for showers never come, and thus haste and waste are spared. His wheat, owing to the dry climate, is dry and glutinous, keeping sweet long, and makes the best flour in the world. "Stock" being cheap, he can have heavy teams, and on the level fields do a great deal of machine-work, even using steam occasionally for threshing. His

Chinese labor costs him no more than Irish labor does in the West, and though it may be less efficient, it is more regular and certain, while he himself, owing to the climate, can work a third or fourth more than his Eastern or Western competitor. The snow or rain interrupts him but little, and ague or disease seldom cripples him.

Most of all, nature gives him a far greater product than it does the farmer of older States. He will often take fifty, sixty, even eighty bushels of wheat to the acre, and will sometimes reap forty bushels of "volunteer crop" where he has not sown, and can even gather his forty bushels of "volunteer" barley for three years without sowing or cultivating. The average yield through the State, on bad land and good, is about twenty-four bushels, while that of the West is fifteen bushels.

No cultivator in the world, moreover, can have so many different products to turn to; beside his wheat and barley, he can plant flax, hemp, Indian corn, and potatoes, raise every variety of vegetables, or have his orchards of peaches, apricots, plums, pears, cherries, apples, almonds, olives, and figs; or he can raise English walnuts or peanuts, or plant vineyards which in five years are quite sure to bring him in from $300 to $500 an acre in wine, and even more in raisins. He has no hay to cut, for his cattle and horses can feed on the wild oats all the year round, or, if he must have some stored, he can cut it from land otherwise of no value; or he can feed stock from wheat-straw.

There are, indeed, as I have mentioned before, obstacles to his getting this crop to market, in the want of elevators, and grain-bins, and railroads. These, however, will soon be overcome. Such have been the profits of agriculture and commerce, that capital is accumulating in San Francisco, and interest on long loans is down to ten per cent. per annum. This surplus capital will soon be directing itself to railroads and conveniences for transporting grain. The saving on sacks alone will make a difference of ten per cent. to the farmer on the cost of production, and the cheapening of freights by railways will make an incredible difference—in fact, will open rich valleys which now can send nothing to market. Then the transport by sea is always a great advantage, as compared with land transport. It is said that the freight on wheat now, from San Francisco to Liverpool, is no more than from Chicago to the same point. As this port becomes more known as a grain-exporting port, and buys more directly from the foreign markets, freights will be cheaper. England is evidently to be the great market for California wheat. It can hardly compete with Western wheat on the New-York market, except in years of short harvest.

Seventeen years ago, Mr. WEBSTER, in a famous oration, ventured to predict that California not only did not then, but never could, produce one-fourth or even one-tenth of the agricultural products of Illinois. In uttering this prediction, he merely expressed the opinions of most intelligent men who had resided here.

But California already, with (I suppose) one-third of the population, produces some 12,000,000 to 15,000,000 bushels of wheat annually, which is nearly half the yield of Illinois; while in barley she produces four times as much, and in fruit she probably now equals her. Moreover, California's produce of wheat this year is some 25 bushels to each inhabitant, while that of the Western States (if the ratio of 1860 be preserved) is only 10 bushels, and that of Illinois about 14 bushels; and of the Middle States only 3⅔ bushels.

During the six months of 1867, ending June 30, California exported in flour, 317,924 barrels, valued at $1,958,619, being an increase of 161,058 barrels, and of $962,479 in value over the same period last year. Of this amount the largest quantity was sent to New York—190,486 barrels, value, $1,222,219, against 22 barrels last year! China took 55,247 barrels, worth $312,896; Great Britain, 34,282 barrels, worth $193,589; Brazil, 14,508 barrels, worth $84,280; Central America, 6,504 barrels; and the East Indies 5,500 barrels. Australia, which took a large amount the year before, took none this year, while Brazil and the East Indies are new customers. In wheat, the export is 2,012,713 sacks, worth $3,940,103, which is an increase of 1,366,647 sacks, and in value of $2,567,552 Great Britain is the great customer, taking 1,456,584 sacks, against 38,383 last year, and our coast 447,538 sacks, against 86,764 in 1866; while Australia takes 3,534 sacks, against 409,978 last year, and China receives less by

54,537. There is a new customer in Spain to the amount of 8,474 sacks.

The export of barley for six months in 1866 was 208,526 sacks of 100 pounds; in the last six months, there has been a temporary falling off, the export being 63,484 sacks, valued at $60,426. Of oats, 4,310 sacks were exported; of hides, 39,545, valued at $6,782, during the last six months; of tallow, 825 packages; of quicksilver, 12,710 flasks, valued at $423,028, of which the largest sale was in Australia, and the next in Peru. In this last there is a reduction of 5,720 flasks, and of $252,974 in value, compared with six months in 1866. Of copper, the export for this period is 3,554 tons, valued at $222,148, which is a falling off in value since 1866 of $451,640. In wines the export is 2,239 packages, valued at $63,389, which is a decrease of value since 1866 of $30,398. In wool, the export is 2,123,172 pounds, valued at $393,201—an increase in pounds of 25,289; in lumber, 71,975,000 feet were exported.

A financial writer makes the following estimate of the value of a few of this year's main productions:

Wheat, 7,000,000 sacks	$15,000,000
Barley, 9,000,000 sacks	5,600,000
Oats, 1,500,000 sacks	2,200,000
Wool, 8,000,000 lbs	2,000,000
Other products	4,000,000
Total agricultural	$28,800,000

Wine, it is supposed, will reach 3,500,000 gallons this year.

It is believed that 150,000 acres of new land will be put in wheat during 1868, and that the crops will reach 20,000,000 bushels.

The interesting fact about the figures given above is the unexpected opening of some new market as an old one fails. If Australia has a good harvest and ceases to demand so much as she has done, our eastern coast suddenly calls for flour; if China fails, Great Britain takes her place; and even remote Spain comes as a customer to the Pacific coast. It must be remembered, there is no exact limit in Europe or in the East to the consumption of wheat. The line of white-bread eating may continually descend in Great Britain, and France, and Germany, as the production of wheat is cheapened or as the consumption of foreign products by our own people enables foreigners to buy of us. Our high protective tariff will undoubtedly tend to diminish the export of cereals to foreign countries.

In Japan and China the consumption of our wheat or flour depends mainly on the quantity of the rice crop. If this be small and the price high, the people turn to American wheat. It is hoped that the return-emigration of Chinese laborers may make the taste for our flour more popular, and to become one of the wants of the Oriental population.

In ten years, we believe, California will be the leading wheat-growing State in the American Union. She will produce this year from fifteen to twenty millions of bushels, with a farming population of probably not more than two hundred thousand. There are numbers of rich valleys that are not even scratched

with the plow as yet. Thousands of acres of the best wheat land in America have yet to be developed, especially in the south. It is estimated that the arable land in the State is 50,000,000 acres; there are under cultivation only about 7,000,000 acres. It needs only an immigration of laborers and small farmers to cause such a harvest to wave on these brown hills, as is nowhere else seen on this continent.

SILK-GROWING.

Among the undeveloped sources of wealth in California, must be enumerated silk-growing—a branch still in its infancy, but full of promise for the future. Wheat, wine, wool, and silk, we believe, are to be the important products of this State, outside of the mineral production. Public attention all over the world has been much called to the advantages of California in raising silk-worms, from the dreadful disease raging throughout the silk-growing countries among the silk-worms, owing to bad feeding, over-crowding, a too damp atmosphere, and variable temperature. Even Japan sends out now infected eggs.

All those experienced in the science of silk-worm raising agree that the climate of California is unequaled in the world in adaptation to this branch. Experiments have been making now for a number of years in this matter, under the guidance of an enthusiastic, public-spirited horticulturist, a Frenchman, M. PREVOST, of San José, who deserves something better of the State than medals. I visited his cocoonery in San José. His experience is that the

great advantage of the climate here more than makes up for the higher price of labor, and he believes that the production can be carried on nearly as cheaply as in France or Italy. Thus, in Europe, dampness, rain, electricity and sudden change of temperature, kill from twenty-five per cent. to seventy-five per cent. of the worms. Here the dry and rainless atmosphere and equable temperature are such that few ever perish. Then the quality of the worm and the silk depends on its food. But nowhere do the mulberry-trees produce such rich vegetation as in this wonderful climate, and the silk-worms thrive accordingly. M. PREVOST, too, has discovered that here branches are a better food than leaves (the European custom being to give the latter), and by providing this there is a considerable saving of labor. He finds, also, that there is no necessity of artificial heat to hatch the eggs; he has only to transfer them from his cellar to his garret, and the warm sun on the roof does the work. Nor is any artificial process needed to stifle the chrysalis before the silk is reeled off; he has only to expose the cocoon to the powerful rays of the sun for a few hours and the cocoon is ready for sale or for the spinner. The lustre of the silk, which is often so much injured by the baking of the cocoons in Europe, is thus preserved in all its brilliancy. M. PREVOST states that the worm remains in a chrysalis state in California from twelve to fourteen days, in France, twenty-one, and in India, eleven days.

A considerable portion of the foreign silk-grower's time is spent in preventing diseases among the worms,

and much has been written on the subject, but here diseases are almost unknown. It seems not improbable that under the wonderfully favorable atmosphere of this coast, a new and improved variety of cocoon will be gradually produced. The California eggs are already highly valued by foreign silk-growers. M. PREVOST produces several millions of eggs each season (one ounce of eggs containing some 40,000), and they are all sold and engaged for years to come at the rate of $5 per ounce. He could sell them by the hundreds of pounds if he could spare them. He has received one order from Mexico, and one for one hundred pounds from Italy. He raised, himself, in one year 100,000 worms and as many cocoons—a work in France for eight persons. His great effort has been, however, to scatter eggs and cocoons through the State, where he has given away great numbers of them. Numerous individuals—it is said as many as one thousand—throughout California, are now at work on the experiment of raising silk-worms. All are successful, the largest cocooneries being at Santa Barbara. M. PREVOST has tried the Chinese variety of cocoon (the yellow), the Japanese (the white), and one imported from France. The latter seems to be the best. There was nothing in the plan of the cocoonery of M. PREVOST of special value, the great point seeming to be to keep the eggs cool and dry till they are put in a warm place to hatch, and then to give the worms plenty of pure air, good food, and to leave them undisturbed in their different stages of growth. The details are the same as in the like

branches in Europe. Great care has to be taken against insects and mice.

Each female is expected to lay about 300 eggs, though here she often produces 450. An ounce of eggs can produce 165 pounds of cocoons. It is estimated that an acre of trees will produce anywhere from 40 to 500 pounds of silk, at a cost not exceeding $2.25 a pound. One hundred pounds of leaves are calculated to produce one pound of reeled silk. An acre of trees ought in four years to yield from 50,000 to 60,000 pounds of leaves, which would be 500 pounds of silk, worth some $3,500—a good profit if it ever be realized. These calculations must call up in the minds of my readers the estimates of the mines of wealth, which so many thousands of our citizens once thought laid up in the mulberry-trees. But it is to be borne in mind we planted the trees and raised the worms in a very different climate from this. Silk-culture could never be an important interest on our coast; but this region has all the conditions for it except one, and that is, cheap labor. This last may be afforded by Chinese, or by women and children working in their own farm-houses, as M. PREVOST'S plan is to induce each householder to have his own cocoonery, and perhaps reel his own silk. The Californians seem taking hold of the matter with characteristic energy and inventiveness. Nowhere do mulberry-trees grow as quickly and vigorously—the variety preferred being the *Morus Moretti*, which originated in Pavia. The silk produced on its leaves has a superior gloss and finer

quality than common silk. Some 4,000,000 trees are said already to have been planted in the State. What is needed now, it seems to me, is some public and pecuniary encouragement by the State to such a man as M. PREVOST (who has sacrificed considerable means in these public-spirited efforts), to enable him thoroughly to demonstrate the possibility and success of silk-growing on this coast. It is possible the effort may succeed without public help, but the first promoter of an interest of such vast importance deserves honorable recognition. We are glad to see that the Legislature of 1868 has appropriated a premium of $250 for cultivating 5,000 mulberry trees for silk culture, and $300 for every 100,000 silk-cocoons produced in good merchantable condition. It is believed that 2,000,000 cocoons were bred in the State in 1868; about 200,000 were sold, and about 1,000 ounces of eggs, at $4 per ounce. A silk factory is already being erected at San José, with machinery for reeling, cleaning, drilling, and twisting, and with thirty-five hand-looms for weaving broad silks, which are fitted with double sets of harness; the company design especially to manufacture a rich black taffetas, or armazine, of a quality that cannot be imported, and, when ordered, to make the same in colors. It is expected that the Californian ladies will be able shortly to sport such silks as are known now only by tradition, and whose only defect will be that they never wear out; most foreign silks, as is well known, being so adulterated in dyeing, or made so light, or mingled so with cotton, as to be little serviceable. To those who smile

at such promises as only California boastings, the people may well appeal to what they have done in woolens; for, certainly, no imported or native blanket can approach in quality, in fineness, and softness, and thickness, the "mission blanket" of San Francisco.

San José may yet become the Lyons of the Pacific coast, and a new stream of wealth flow into the country from its silk manufacture.

We already hear of silk-worm-growers from France and Italy establishing themselves in California in order to obtain the remarkable variety of cocoons and eggs produced here.

The producing of eggs is even more profitable than raising worms for silk, as after selling the eggs, the cocoons can be retained for silk-velvet, &c.

The following are M. PREVOST'S instructions to silk-growers:

"SELECT YOUR COCOONS FROM THE EGGS.—For seed, the very best cocoons should be selected; that is, those which are of the largest size and feel firm and are of a bright color; and so far as possible, an equal number of males and females; the male cocoons are slender, depressed in the middle, and pointed at both ends; the female cocoons are of a larger size and of a rounder form, and resemble in shape a hen's egg.

"If we keep selecting carefully our very best cocoons for seed, it is my opinion, and also that of other competent silk-growers, that under our fine climate, so very favorable to silk culture, within a few years, we will obtain a California variety, that will surpass in size and quality all the varieties known and cultivated now.

"After having stripped the floss, they may be strung together by threads, being careful not to pierce the cocoon, and hung up to the wainscot in festoons; or placed in a single layer in open paper boxes, on shelves or tables, in a darkened, retired, warm and airy place; and from twelve to fifteen days from the time they complete spinning, according to the warmth of the season, the moth emerges from the cocoon, in the shape of a large butterfly, of a grayish-white color,

with four wings, two eyes, and two feathery plumes or horns. The male usually appears first, and is known by his smaller size and a continual flutter of his wings. The female is of a larger size, of a whiter color, and seldom moves. These are to be paired, and then removed by their wings to sheets of paper spread on tables or boards, where they are to be left in darkness, as when complete; the silkworm is a night insect.

"They generally come out of the cocoons in the morning, between seven and nine o'clock, when you have to be there and see that they are all paired; otherwise, your eggs would not be good for anything. Those that are paired you take by the wings, being careful not to hurt or separate them; you put them on the papers, and those that are not paired, you take them, males and females, and put them together on a separate sheet of paper, and they will soon get paired there; and when they are, you take them and put them with the others.

"Sometimes, among the paired ones, a male or more gets loose, and as soon as you see this you must take them off, because they would disturb the others, and cause many of them to get loose also; and it is important that they should not be disturbed. You put these loose ones, male and female, back with the unpaired ones, so that they may all get paired again.

"After they are all paired you leave them in their dark place till about four or five o'clock in the afternoon, when you have to separate them. For that purpose, take the wings of the male in one hand, and the wings of the female with the other; draw them apart gently, so as not to hurt them; place the males in a box, and the females on the table or cloth on which you wish to have them lay their eggs.

"Most of the females begin to lay as soon as separated from the males; but be careful to leave no males among the females that are placed to lay their eggs, and if by mistake you have thrown a female among the males, carefully place it with the others.

"After that operation is done, and the females commence laying, you have nothing more to do with them; cover the box which contains the males, and keep it so until the next morning; it is what is called the reserve. The next morning proceed the same way as I have said above; but it happens sometimes that you have more females than males, in which case, after you have all your males of the morning employed, you take the quantity you need from your reserve, as you must remember that every female must be provided for for producing good eggs.

"After you have been using the males you want from your *reserve*, throw all the balance out, and the birds will soon eat them. Do the same thing every day, till all the moths have emerged from the cocoons.

"One hundred pairs of cocoons, which weigh a pound, will produce an ounce of eggs; and an ounce of eggs is considered to produce forty thousand silk-worms.

"After your females have done laying their eggs they will all die, and then you can roll together carefully the papers on which your eggs are, and place them in tin boxes. Two sides or more of these boxes should be of perforated tin. These boxes, to be preserved, should be placed in a cool room or dry cellar, where they will not be liable to freeze; but freezing, though it may injure by retarding the period of their hatching, yet does not destroy them.

"It is preferable, thirty or forty hours after the females have been laying, to take them out from their eggs, because after that time they lay but a few eggs, and those last eggs are not considered as good as the first laid.

"As we will now raise eggs for exportation, we must adopt a uniform plan for our eggs in California, as they have in other countries where they are raising eggs to export, and for that purpose I have been examining several paste-boards (cartoons), and have found one of a good size, and of a good and light quality; they are little over nine inches and a half wide by one foot and one inch long; they only cost one cent a-piece; I think they are the best thing we can adopt. Those that have them not in their localities can have them by sending to me their orders with the money for the quantity they desire to receive.

"This year, particularly, the weather has been uncommonly bad for the worms, on account of the constant cold weather, fogs, and rain, we had so late in the spring. I desire to repeat here to our silk-growers, and wish to impress it on their minds, that they must not feed their worms with wet leaves. The food must be gathered—as much as possible—when the sun shines upon the trees; wait until the dew is off. Gather late in the afternoon your food for the night and for the first feeding of the morning; give as much as needed of the leaves right fresh from the trees. Do not let them get faded, as they are in that state too hard for the worm to eat."

Mr. W. M. HAYNE makes the following recommendations to the State Agricultural Society:

"The quantity of feed that a given number will require, say for fifty thousand worms, the first week, will average about fifteen pounds per day; second age, about sixty pounds per day; third age, about one hundred and forty pounds per day; fourth age, about three hundred pounds per day. Now, allowing seven days to each age, we have, in round numbers, seven thousand eight hundred and five pounds of mulberry-leaves to make fifty thousand cocoons. Twenty times this amount will be one hundred and fifty-six thousand one hundred pounds, which will make one million cocoons.

"The Japanese silk-worms, being of a much smaller variety, and consequently not making so large cocoons, will not consume more than two-thirds this amount of feed. It will be seen that I have allowed thirty-five days for the worms to commence spinning. This is about the usual time when not fed at night during the last two ages of their existence; but if properly treated and fed day and night during the last two ages of their lives, they will commence spinning in twenty-eight to thirty-two days from the hatching. The worms, when about to molt, will seek obscurity from the light, when they will firmly attach themselves to the fibres of the leaves, remaining perfectly motionless, in a death-like torpid state, for twelve or eighteen hours, when they will commence to move their bodies forward, and if not disturbed, will, in the course of twelve or eighteen hours more, extricate themselves from their old skin or coating, and leave it as firmly attached to the first as when fastened there by them at the commencement of the process.

"It will be observed, according to my experience and calculations, that seventy-eight tons of mulberry-leaves will make one million of cocoons, and that three acres of mulberries will yield ninety tons of feed. Three acres, then, will give us ample food for one million of the large Chinese cocoons. Those cocoons will weigh about one thousand four hundred pounds after being well dried and the chrysalis losing all of its animal matter and becoming a light shell within the cocoons, in which state we shall not lose over seventy per cent. in winding, which will give us four hundred and twenty pounds of raw silk. This, at seven dollars per pound, will give us two thousand nine hundred and forty dollars for two and one half acres of mulberries. Now for the expense:

COST.	Amount.
Six men for the first age	$42 00
Eight men for the second age	56 00
Twelve men for the third age	84 00

COST—(Continued).	Amount.
Twenty men for the fourth age	$140 00
Thirty men for the fifth age	210 00
Winding, at one dollar per pound	420 00
Total expense in full, when put in hanks of raw silk	$952 00

"This leaves about two thousand dollars for two and a half acres, or eight hundred dollars net per acre. The capital to be invested to secure these results will be two and one-half acres of mulberries, say five hundred dollars per acre; a cocoonery and reels, about eight thousand dollars, making ten thousand five hundred dollars. But it must be remembered that by increasing your plantation to eight acres you can make three millions of cocoons in one season without any additional cost of building, by the following process: See that you have sufficient eggs for hatching this number. Place them in a tin box with perforated sides and ends; keep the box in a dry, cool place through the winter; at the latter part of the winter put them in an ice-house where they will be kept at a temperature of about forty degrees. On the first of May take one million, which will be in weight twenty-five ounces, and hatch them. By the first of June these will be so far out of the way that you may hatch another twenty-five ounces, and so for July; and if you have eggs, you may hatch the fourth batch for August, which will give the nice sum of eight thousand dollars net profit on four millions of cocoons.

"After we have chosen a sufficient number of cocoons to furnish eggs for the next year's feeding, they are placed thinly upon a shelf, and in eight to ten days from the time they have finished spinning they are transformed into a chrysalis, which immediately emits from its mouth an oily substance against one end of the cocoon, and, simultaneously, with its head commences a shoving and pushing motion, when in a few hours it will emerge again into the world. They are then taken, male and female, and all put into a box, and as fast as they pair they are taken out and placed upon a table. In this position they are allowed to remain about six hours. They are then separated and the males put into a box. The females are placed on sheets of white paper, and in three or four hours she will lay her eggs to the number of three or four hundred. This process is gone through with every day until the millers have laid all their eggs—this will finish the existence of the silk-worm for the year."

I append a letter on this important subject:

SANTA BARBARA—STATE OF CALIFORNIA, July 15, 1868.

DEAR SIR,—In the month of April I hatched out three ounces of eggs of silk-worms—(French and Japan eggs.) In the middle of June I had one hundred thousand cocoons.

100,000 cocoons—40 lbs of pure silk	$400 00
Premium of the State of California on 100,000 cocoons	300 00
Total	$700 00

EXPENSES.

Wages to six girls, 15 years old, about	$50 00	
Wages to the Superintendent	50 00	
Winding off of the cocoons	100 00	$200 00
Balance		$500 00

The price of silk worm eggs is nominal in California. I never sold any. I would consider $5.00 per ounce as the best business to go in.

This year (1868) I, in company with A. Packard, hatched out six ounces of silk worm eggs; they are doing well, and very soon, if you wish, I will give you the result of 1868 operations.

Now, sir, you must notice that few places in California can give labor-wages as low as Santa Barbara. Our town is inhabited by about one hundred families of Californians (Mexicans); each family has from five to twenty children; said children will not be *servants*, principally the girls, but they will attend to silkworms with pleasure (light work and not permament), and that for low wages.

We have (Mr. A. Packard and myself) ten acres of land planted with 2,000 mulberry trees, six years old. Next year we will be able to feed the worms on nine ounces of eggs, and perhaps make two crops in a year. I don't see any difficulty. California can produce all the silk they want, but they must plant trees before they speculate on silk-worm eggs, and before putting up machinery for the weaving of silk.

I shall be glad to give you all the information on the silk business, and will always remain within the limits of truth. Exaggerations have been killing many good enterprises in California.

Yours very truly,

T. E. GOUX.

CHAPTER XXV.

THE CLIMATE OF THE PACIFIC COAST—CALIFORNIA AND OREGON.

THE causes of the peculiar climate of our western coast are still not altogether clear. Some important facts, however, are known, which aid in explaining it, and no doubt if the careful investigations of the Government geographical survey in the Sierras, and the observations of Government officers on the sea-board and at the various military stations, both in regard to meteorology and marine currents and temperature be continued, we shall have, in a few years, the basis of a "Science of Climate" for the Pacific coast.

The data of the science least known and determined are the marine currents of the Pacific Ocean, which must have so vast an influence in determining the climate of its coasts, and the hygrometical condition of the atmosphere (or the exact amount of moisture contained in it) on this border of the continent. Every traveler and observer will agree that there is a mysterious something in the climate of Western California, for instance, which is singularly bracing and invigorating, which cannot exactly be explained by its equability, its temperature, or its dryness. Whether it arises from that unknown element called *ozone*, which the air is said especially to acquire in blowing over wide tracts of ocean, or whether it comes from that fortunate

mixture of oceanic and continental climates which characterizes this coast, or from some utterly undiscovered cause, future investigations must decide. In this brief account of the climates of the Pacific coast, we will confine ourselves to the facts which are known, but are not often put together, and to inferences which can be safely drawn from them.

The general impression of intelligent people in the Eastern States of the coast of the Northern Pacific, is that it is a most disagreeable, cold, gloomy, half-barren region, with little capacities for production or future development. Nothing can be further from the truth.

The coasts of our northern possessions on the Pacific, and of British America, and an immense tract lying eastward and stretching far to the north, are as capable of producing the grains and fruits of a temperate climate, and of supporting a large population, as any part of Northern Europe. The isothermal lines are the best measures of the capacity of a country in supporting life.

Beginning as far to the north as Alaska, we find the mean annual temperature (32°) here the same as that of the north coast of Lake Superior, of most of Norway, and of latitude 50° in Asia.

Coming down to Sitka, from which the ice (consumed in California) is brought, we find the summer of Norway, (55° mean), and crossing the mountains to the interior plain we discover precisely in its latitude a district so warm and sunny as to possess the summer of France (65° mean). An immense region in this part of the continent, reaching as far north as 60° 65′

north latitude or beyond the latitude, of Alaska, is adapted, with the exception of the mountains, to wheat and bread grains.

Going still northward of this, even above the latitude of Alaska, and north of the southernmost point of Greenland, we find a region near the McKenzie River so mild in climate as to possess the summer of Ireland (60° mean.) This delicious summer temperature extends from this point southward till it strikes the coast below Puget's Sound, and continues on to near Los Angeles, or at the latitude of Africa, for 1,500 miles of north and south distance. This wonderful range of a cool and mild summer (57° to 60°), for such an immense distance over a whole coast, is a fact unknown elsewhere in the world. It is as if the summer of Ireland extended from Bergen, in Norway, to the Straits of Gibraltar, or from Hudson's Bay to Mexico. It should be remembered that this temperature is far inland on the north, in British America, and is in the neighborhood of the coast in Washington Territory, Oregon, and California.

It thus appears that on the Pacific coast the isothermals are north and south instead of east and west. Still it must be remembered that down the whole coast, between the coast ranges and the high mountains of the interior, are parallel belts of climate which are considerably different from one another.

If we descend a little south in British America, in about the latitude of Hudson's Bay and Scotland, we find the summer of France (65° mean). This belt of sunny climate, though interrupted by the Rocky Moun-

tains, we may follow down inside of the coast ranges, and eastward of San Francisco, till we reach Los Angeles; or, as if from Scotland to Africa, one belt of delicious summer extended through Europe.

Again, beginning in the latitude of Puget's Sound, in the eastward of the mountains, in British America, we find the summer of southern France and northern Italy (70° mean). This is interrupted by the mountains, and begins again in the latitude of Astoria, extending down through Oregon and Central California, near the Sierras, to the south of Los Angeles, or the latitude of northern Africa—the region, in its central portions, of the vine, the fig and the olive.

On the other hand, Puget's Sound has on its northern coast the climate of Ireland and England through the year, or a mean annual temperature of 50°. Its rain-fall, however, is greater, being fifty-five inches annually, against forty-five to fifty inches in those countries.

Central California, up to the 40th parallel, has the yearly temperature (60° mean) of Spain, Central Italy, Asia Minor and Northern Syria, while San Francisco is a little cooler, having a mean annual temperature of 55°.

Southern California, beginning near the 30th parallel, and including the region above the Gulf up to a point in the interior, east of Los Angeles, has the mean annual temperature of North Africa and Cairo (70°). If we consider the summer climates of the south, we find the summer of Algeria (80° mean) prevailing through the Californian Peninsula, and extending up

the deserts eastward of the Sierras until it reaches a point in the Great Basin of Nevada, as far north as the latitude of San Francisco. Again, in the central part of California, in the Valley of the St. Joaquin, we discover a small district with the summer of the Great Desert of Sahara (85°), and a monthly mean at 3 P. M. of 108°; and we meet with this formidable temperature still further south in the Arizona Desert. One spot near the Colorado and the Gila enjoys the summer of the hottest parts of Africa (90° mean), and reaches at times a temperature hardly surpassed in the world, the thermometer sometimes indicating 116° in the shade, and keeping a mean of over 100° for a month.

Again, if we look at the winter temperature, we find that the winter of Ireland, England, Western France, and Northern Italy and Asia Minor (40° mean) begins at Vancouver's and passes down through Oregon westward of the Cascade Mountains, and follows the line of the Sierras to a little north of San Francisco, while the winter of Charleston (50° mean) begins in this city, and passes down inside of the coast range to the lower Colorado.

Before examining further the particular characteristics of the Pacific climates, or seeking for their causes, it may be well to observe the general correspondence between the Pacific countries and those of the Eastern continents. This coast has no analogy with our Atlantic, but only with the European coasts, and with them many points of difference. On the north, Sitka and the upper portion of the British American

sea-board correspond with Norway; Puget's Sound, Vancouver's Island, Washington, and Oregon with Ireland and England; Central California with Spain and Syria; and the Peninsula with North Africa. There seems no region corresponding with France. The inland regions on the north, in British America, seem in climate and productions to bear an analogy to North Germany and Sweden. Evidently, if we may trust to the observations of temperature and the accounts of intelligent travelers, there is a vast, unknown, but fertile region, reaching up the coast, and extending on the east side of the continuance of the Rocky * Mountains as far north as the 60th parallel, capable in the future of supporting millions of inhabitants, and of producing all the grasses and bread-grains and trees of the temperate zone.

The most wonderful feature of the Californian coast climate, is its equability. The winters' range of temperature, during four years of observation, was only 4°. The range in San Francisco, between January and July, was only 8° 3′, while in Washington, for the same period, it was five times as great, or 44° 2′. The temperature of San Diego ranges less than *half a degree* on the average for each month of the year.

I will quote here some tables of the range of temperature, at different seasons, on the Pacific and Atlantic coasts in Europe, as well as of the mean winter temperature; they are taken from BLODGETT'S excellent work on the "Climatology of the United States," from which the facts stated above are mainly taken.

* Prof. Whitney proposes the name *Cordilleras* for this chain.

SPRING.

Advance of Temperature.

Stations.	March Mean	March to April.	April to May.	May to June.
Boston	36.2	10.2	10.1	9.7
New York	38.3	10.4	10.7	9.0
San Francisco	52.8	2.5	0.0	3.5
Fort Miller, Cal.	56.7	6.3	6.0	4.9
London	42.5	4.4	6.6	7.0

AUTUMN.

Decline of Temperature.

Station.	August. Mean.	Aug. to Sept.	Sept. to Oct.	Oct. to Nov.	Nov. to Dec.
West Point	71.8	7.5	11.3	10.8	19.3
San Francisco	57.2	1.0	0.3	8.6	3.1
Fort Miller	83.0	7.0	8.5	12.0	7.4
Fort Vancouver	65.0	4.7	7.5	6.8	10.0

WINTER TEMPERATURE.

Stations	Mean	Stations.	Mean.
San Diego	52.3	Lisbon	52.5
Aspinwall	42.4	Penzance	44.2
Sitka	26.5	Bergen	36.3
San Francisco	50.0		

It will be seen from this that San Francisco only changes 2° 4′ from March to April, while the range in New York and Boston is five times as much, and from April to May ten times as much as in the corresponding months on the western coast. In autumn the temperature rises in San Francisco in September, as compared with August, and only falls 3′ of one degree in October, while it falls 11° at West Point. Again, from October to November, and November to December, it falls but 3° in each, while here the decrease is 10°.

In winter the mean temperature of San Diego and Lisbon are the same, of Sitka and Bergen (Norway), and nearly of Astoria and Penzance (Cornwall).

A very remarkable feature is also the variety of climates within a breadth of 150 miles in California. Thus, one may be enjoying a cool, pleasant June, say with a mean of 57°, in Monterey; he may travel east 150 miles, and pass through five successive belts of climate, representing, in turns, the summers of Ireland, France, northern Italy, Spain, and Algeria, until at Fort Miller he finds a mean temperature of 108°, or the heats of interior Africa. Again, he has but the journey of a few miles to the snows and frosts of the Sierras. Within two hundred miles, he may thus try almost every belt of the world's climate.

In comparing the temperature of Pacific stations with European, we find that San Francisco has the yearly temperature of Bordeaux and of Constantinople, but with far more equability of climate. Its spring (57° and 54°) is milder than that of any city with which it can be compared, except Lisbon or Cadiz; its summer (69° and 57°) is less warm, and its winter far more genial than, for instance, that of Bordeaux, Madrid, Cadiz, Lisbon, or Constantinople.

Monterey, again, has the yearly temperature of Toulouse, San Diego or Cadiz. Los Angeles, which has a spring equal in warmth (74°) to the summer of Madrid, has a summer (67°) cooler than any corresponding European station, with an autumn (56°) as moderate as that of southern France.

Taking the year through, the climate of California

is a dry one, the summer, from the middle of May till November, being almost entirely without rain, and the winter being mainly only a showery season. The annual rain-fall is only about 22 inches,* which is nearly the same with that of Syria, and about equal with Paris and Marseilles, while our coast reaches 42. The driest seasons prevail at Fort Yuma (where the rain-fall is only 3.15 inches) and on the southern coast. Thus, on the Ranche del Chino, near Los Angeles, the fall is 9.7 inches; at San Diego, 10.43;

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*RAIN-FALL IN CALIFORNIA.—The Stockton *Gazette* has been collecting the statistics of the rain-fall in the State for 1868, which will be found below:

MARE ISLAND.

	Inches.
Rain up to January 1	14.34
Rain during January	9.50
Rain during February	3.18
Rain during March	5.27
Rain during April, to 8.	0. 8
Total	32.47

The greatest fall of rain we had was from 7 A. M., March 2, to 7 A. M., March 3; during that time, 24 hours, it rained 63 inches.

STOCKTON.

We obtained, through the courtesy of Dr. Shurtleff, the report of the rain-fall during the present season, up to date, as follows:

1867.		Inches.	1867.		Inches.
Sept.	14	.63	Dec.	18	1.13
Oct	6	.62	"	20	.37
Nov.	5	.73	"	21	13
"	6	.46	"	22	1.25
"	19	.62	"	23	.13
"	22	.06	"	24	42
"	26	.29	"	25	.48
Dec.	2	.13	"	29	.58
"	5	25	"	30	.27
"	7	.26	"	31	.21
"	9	.20			
"	10	.53	Total		9.29
"	16	.14			

at San Luis Rey, 12.20. It increases steadily up the coast, being about 20 at San Francisco,* 47.38 at Fort Vancouver, Oregon, or about the same as at Cin-

1868.		Inches.	1868.		Inches.
Jan.	1	.75	Feb.	26	.38
"	2	.07	"	27	.37
"	4	.18	"	28	.43
"	12	1.02	"	29	.16
"	13	.23	Mar.	1	.54
"	14	.14	"	2	.08
"	18	.40	"	4	.75
"	20	.40	"	12	.09
"	22	.28	"	14	.84
"	23	.32	"	15	.53
"	24	.20	"	23	.68
"	25	.66	April	9	.14
"	26	.20	"	10	.40
"	27	.22	"	11	.53
Feb.	20	.41	"	12	.49
"	20	.37			
"	24	.16		Total	21.7

* FALL OF RAIN IN SAN FRANCISCO.

In the season of 1849-50 the rain-fall was	33.10
1850-51	7.18
1851-52	19.25
1852-53	33.20
1853-54	23.87
1854-55	23.68
1855-56	21.66
1856-57	19.88
1857-58	21.81
1858-59	22.22
1859-60	22.27
1860-61	19.72
1861-62	49.27
1862-63	13.62
1863-64	10.08
1864-65	24.73
1865-66	22.93
1866-67	33.84
1867-68 to March 26th	36.27

It will be seen by the table above, that the wet winter of 1849-50—33 10-100ths inches—was followed by the drought of 1850-1 when only 7 18-100ths inches of rain fell between July 1 and June 30. Again, the extremely heavy fall of rain in the years 1861-2 was followed by the drought of 1862-3, when only

cinnati; 86.35 at Astoria, and 89.94 at Sitka—the latter even surpassing Bergen, in Norway (80 inches).

The spring rains only average two inches in San Diego, ten in San Francisco, and fifteen at Astoria. All the famous vine countries of Europe have more rain through the year than Central California. Thus Bordeaux has 34 inches; the Rhine, 36.17; Madeira, 30.87; Manheim, 27.

The stranger from the eastern coast is particularly struck with the dryness and purity of the California atmosphere. Animals which are left about dead, and garbage, do not infect the air as at home. Decaying substance seems to dry up. To this is due in part the remarkable salubrity of San Francisco. And yet much moisture must be borne in on the prevailing westerly sea winds, as is shown by the heavy fog which they cause in this city and its neighborhood. So dry and healthy are the nights, anywhere away from the coast, that one can sleep out in "the open" with the greatest comfort, and numbers of the laboring men in the rural districts still keep up their camping habits by rolling themselves in their blankets, and "turning in" on a hay-stack or under a tree.

13 62-100ths inches fell, and the still greater drought of 1863-4—108-100ths inches. There has been no drought except when there had been excessive rains in former years, but there was one year—1852-3—when the rain-fall was 33 20-100ths inches, and it was followed by the average weather. The last two seasons have both been excessively wet; in 1866-7 74-100ths of an inch more rain fell than in the wet season of 1849-50, which was followed by the driest single year since American occupation. The greatest amount of excess over the average rain-fall in any one year was in 1861-2, when the excess was over 27 inches, and two years of destructive drought passed over before we saw an average season again. The excess of the two last seasons added together is over 24 inches, and we must expect a very light rain-fall next season.—*Evening Bulletin.*

In investigating the causes of the peculiar climates on the Pacific coast, as I have said before, the difficulty is in the want of thorough observations of the facts. The great controlling cause is, without doubt, the ocean-current, or currents that set in on that coast; but how little is known of these. We only know this, that in summer a great body of cool water pours in, probably from the Arctic regions, on the whole coast of California, Oregon, and British America, and that this current is probably somewhat turned off from the northern portion of British America by the peninsula of Alaska and the adjacent islands. The result is that this part of the coast is often warmer than the more southern portion in summer. This great body of cool water is coldest near the coast, so that on the fortieth parallel its temperature is increased from 46° 5′, near the land, steadily through five degrees of longitude westward to 68°, and on the thirtieth from 62° to 66° during three degrees.* Its average temperature near land is 57°, or the same with the coast climate. In winter the water near the coast is two or three degrees higher than in summer, and as much higher than the temperature of the land.

As the sun's rays in the summer months become more vertical, the inner plains and deserts of California and Nevada become heated, and the air rarefied. The great body of cool atmosphere on the neighboring ocean at once begins to pour into the rarefied spaces, and we have that constant sea-gale, which each day roars through the opening in the mountains, called the

* Maury, as quoted by Blodgett.

"Golden Gate," and, pouring over the coast ranges, cools all interior California. The coast is reduced to an average temperature of 57° by it, and but for it, under a semi-tropical sun, without rain, the inner plains would become a desert. This sea-wind is, however, stripped of much moisture by the coast ranges, so that the interior suffers from want of water, and when it reaches the Sierras and passes them, it becomes an utterly dry wind over the great Basin of the middle of the continent. I have felt this cooling gale in the very midst of the hottest cañons of the Sierras.

Again, in the winter, the sun's rays becoming less vertical, and the interior being cooled, at the same time the ocean water (from some unexplained reason) being warmer, the sea gales cease, and the coast is warmer in autumn than in summer. The south and southeast winds, as well as the west and northwest, bringing in milder air than that of the land, are at once condensed, and the rainy season ensues. The most rainy point for the wind at San Francisco is south-southeast, which is the line of the southern coast, and must bring in a milder temperature. The return of the sun northward again reverses this. The upper coasts of the Pacific are struck by the return trades in summer, and the weather being milder than on the Californian coast, and their interior portions, perhaps, less highly rarefied, their winds are less violent and more warm, and thus more constantly condensed, so that they have far more rain throughout the year. But why the Oregon coast should have so

much more rain than the Californian, and with such frequent southeast winds, is not clear from any facts I have been able to collect.

The coast ranges along the whole coast naturally form interior climates quite different from that of the sea-board. The further the interior ranges are from the influence of the sea air, and the nearer to reflected heat from the sides of the Sierras, the hotter they become, until, as at Fort Miller, where the sun's rays are concentrated by hill-sides and the sea-breeze is shut off, we have the heat of the tropics; or, as at Fort Yuma, where the air is mainly from interior deserts, and the sea-breeze is utterly dried, and the latitude is far south, we find one of the hottest regions known in the world. So in interior British America and Washington Territory, we have regions quite northward, shut off from cool sea-winds and from dry desert air, placed between mountains where the summer sun produces a temperature and flora which surprises us. There are probably also features in the configuration of the Northern Continent with which we are as yet unacquainted, sheltering these remarkable districts from Arctic winds.

I shall speak in a future chapter of the interesting correspondence between Syria and California. If we consider that the rain-fall and annual mean of temperature of both are nearly the same, we shall see where the essential resemblance lies. But the Great African Desert acts upon the Asiatic country with far greater power than does our interior Basin and the Arizona desert on California. And the Mediter-

ranean is feeble in its importance compared with that vast body of water which cools and tempers the climate of the Pacific coast.

The climate of California is essentially its own, and has no exact analogue elsewhere in the world.

CHAPTER XXVI.

CALIFORNIA FOR THE EMIGRANT.

A GOOD proportion, probably, of the American people, are always designing to change their dwelling-place. There is a steady and strong current every year from our older States to the newer, and again from them to the unknown and desolate regions in the center of the continent. The young men are asking themselves in every quarter of the Union whither they can move to better their condition. For the last five or eight years the great stream of emigration in the United States has only carried a few eddies to these Pacific States, and California has given the rare instance in American annals of a rich and fertile region increasing but slowly in population.

The causes of this retrogression I have spoken of elsewhere. They lay in the unfavorable or undeveloped moral agencies here, the uncertainty of the tenure of land, the bad name attached to mining, and the distance of the country from the world's centers of population. But within the last few years a new and better era has opened for California. She has become an agricultural State—a country of farmers. It is her capacities in this direction which have especially interested me, believing, as I do, and as every student of economy must, that the only perma-

nent foundation for prosperity is in a division of the soil into independent and self-supporting freeholds for agriculture, rather than in large grazing ranches, or in associated or individual mining properties.

As I have endeavored to show in these notes, agriculture has made an astonishing development in these latter years in California, of which, perhaps, the most striking evidence lies in the fact that the wheat crop of the State this year will just about equal in value the produce of gold and silver.

Society, too, is becoming settled. The labors of self-sacrificing men have borne fruit, and the various supports to civilization—schools, and academies, and charities, and churches—have sprung up. A new generation has nearly come to maturity who know no country but California, and do not speak of the eastern coast as "home," and believe this State to be the center and perfection of all good. This is giving a less shifting and adventurous air to the community. With all the defects which will always afflict a society founded on mining and adventure, law is becoming supreme, and civilization is gradually asserting her power. The country is becoming far more attractive to the immigrant. Then the amazing natural resources of this coast are beginning to appear, and the wonderful richness and bounty of its climate and soil. Nothing but the astonishing ignorance which prevails in our Eastern States of this great treasure which we have in our own territory, could have kept a populous agricultural immigration, long ere this, from settling and cultivating these favored valleys

and hill-sides. The great obstacle to the settlement of California is now nearly removed; for though the Pacific Railroad may not be entirely finished this summer, the gap will be easily bridged over by coaches or immigrant wagons; and both the overland line and the Pacific mail steamships will then compete in carrying the immigrants. The latter, it seems to me, will have the advantage. With cheap screw-steamers, such as now run between New York and Liverpool, they could easily convey a thousand immigrants to San Francisco from our coast for $40 each, or even less—supposing the fare on the Isthmus reduced, as it must be by this competition. The President of the Pacific Railroad speaks of landing emigrants in San Francisco from St. Louis for $35. Whether this be done or not, in a few years a powerful current of immigration will sweep in to this coast, and it will be an important question what sort of people should come, and where they should settle.

In the first place it should be distinctly understood by all persons thinking of emigrating, that this is not the country for a lazy man or woman. No idle person thrives here. If a man had money and could afford to be idle he would not enjoy it. Everyone works hard in California. Its climate is the very air of labor—nowhere else in the world do people toil so closely. Nor is this the place for that large class who lie so heavily on the charitable, and who are so constantly seeking employment in our Northern cities. What we may call the half-educated class, petty clerks, small shop-keepers, broken-down scholars,

accountants, and unsuccessful professional men—they can do nothing here; the city is full of them; the coast of the Pacific is all strewn with these ship-wrecked fortunes. And when such people fail here, they sink far deeper than at home. The very atmosphere is an atmosphere of pride. No one could condescend to beg here. A man who is utterly defeated in the struggle of life in California does not ask for a helping hand; he starves, or he ends his troubles with self-murder. For Heaven's sake let the weak and half-educated and unlucky beware of the Pacific coast!

The labor most in demand now in this State is female labor. As I have shown before, the wages of "domestics" are three times higher than in New York, waitresses and chambermaids receiving from $20 to $25 (in gold) a month, and cooks $30; girls for all work get $30, also. They are treated better than servants at home, and are almost certain to marry above their rank of life. Large numbers of them have good properties here. They receive better wages than the men. The wonder is that more of our smartest servant-girls do not come, as their passage-money would only be from $50 to $75, and a well-recommended girl might get her fare advanced. Female teachers, with good certificates, are also in demand, and could earn from $50 to $75 a month. Nowhere in the world are women treated so well, or are so much needed. In the mining regions four out of five of the men are said to be bachelors.

In male labor, all kinds of skilled workmen are in

demand, and receive high wages; they very generally have houses of their own, and money in bank. From $50 to $125 dollars a month, in gold, are not uncommon wages for teamsters, carpenters, ship-builders, caulkers, blacksmiths, and the like; some, however, being paid by the day. Miners receive from $3.50 to $5 a day. Farm-laborers, of course, are always needed, and can reckon on $30 to $40 a month and board; they soon come to own farms of their own. In regard to skilled professional labor, it is impossible to give an opinion, the demand depending so much on circumstances. An able young lawyer or physician ought certainly to make his way in San Francisco, but perhaps with no more chances in his favor than in New York or Boston.

The country seems to me best of all adapted for men with small capitals who are farmers or vine-growers. For such it offers immense inducements. The work of clearing a farm here is as nothing compared with that needed in the Northwest, for instance. For six months in the year the new settler can "camp," not needing a house in this delicious climate; he has no barns to build at first; there is no forest to clear, or stones to remove; he has only to girdle the few trees he may wish to destroy, fence in his land, and at once begin his plowing. His hay or feed is ready at hand, on all the hills, so that feeding his stock costs him little trouble or expense. His first crop of wheat may be anywhere from forty to sixty bushels to the acre. His land, which he may have bought anywhere from $5 to $25 an acre,

according to its nearness to market, at once begins a steady rise in value, and soon sells for from $50 to $100, so constant is the demand for wheat and barley. There is no better investment in the State than good wheat-lands under cultivation. All the luxuries of the farmer the new settler can have speedily. In three or four years he can enjoy a variety of fruits from his own orchards, and vegetables from his garden, such as are seen nowhere else in the world. He can get good stock cheap, and raise them easily. He may try sheep-raising on his barren hills—a most profitable branch in California; or, if near a city, he may have a dairy ranch, or breed fowls for market, or he may attempt unusual crops, such as hops, which are far superior to the eastern, or flax, which grows luxuriantly, or the castor-bean for a lubricating oil, or olives for olive-oil, or almonds, which sell everywhere, or figs for market, or grapes for raisins; or he may put his wife and children at silk-worm growing—yet destined to be the great pursuit of California. In the ordinary fruit, such as peaches, pears, apricots, and apples, he will find the market overstocked. His great stand-by will be wheat and wool.

CHAPTER XXVII.

WHERE TO SETTLE IN CALIFORNIA.

As I have often said, no agricultural pursuit in this State is nearly so profitable as vine-growing. The vintager can buy his land for from $5 to $75 an acre, according to its nearness to market. He must have a little capital, so as to be able to wait five or six years, though he can at the same time be supporting himself by some other branch, as wheat-raising or stock-breeding. After six years he can reckon on from $60 to $100 an acre for his grapes; or, for his wine, from $25 up to $600 per acre, according to its quality and his own skill.

But both in farming and vine-culture the stranger must bear in mind that he has everything to learn. There is no climate in Europe or the Eastern States, and few soils, that resemble those of California. The conditions are essentially different, and what would suit our circumstances might be entirely unadapted to these. No one must enter on any branch of agriculture or gardening here and fancy he knows it beforehand, however experienced he may be at home. He must be willing to wait and learn; and, indeed, the wisest way would be for every farmer or vine-grower to spend a year in some person's employ before he started for himself. He would really save money and time in this way. Hundreds of thousands of dollars

have been wasted in California by inexperienced persons experimenting in these branches.

A stranger, desiring to settle in this State, should avoid the river bottoms, such as the lower plains of the Sacramento and San Joaquin, as those are the only parts of the country subject to the fever and ague; though the land is comparatively cheap, and if a system of irrigation be ever introduced, will become valuable wheat land. If he fear great heat, he must avoid the Foot Hills and the valleys of the Sierras, though it is on these hills that the best vine-lands are found, and here the greatest profit in wine-making will be made. Good vine-land can be bought in such places for a mere trifle. But for many years it will be very difficult to build up pleasant homes in these localities. The climate is very hot in summer; the roads are deep with dust or heavy with mud. There are few good schools or churches. Society is very limited, and the aspect of the landscape to a Northerner is very bare and arid.

When railroads intersect the whole State, these Foot Hills will become desirable homesteads. At present their distance from market is a serious objection, as it costs no more to convey a barrel of flour from San Francisco to New York than from some of these hills to the seaboard. The wheat-grower must not look south of Monterey, as the rust below that point spoils the harvest. Perhaps, for both farmer and vine-grower, the most desirable parts of the State now are the valleys of the coast range north of the Bay of San Francisco, such as Sonoma, Napa, Peta-

luma, and even as far north as Russian river. In these lovely valleys a delicious climate prevails. The sun is warm, but in the afternoon the sea-breeze from the Golden Gate tempers the air, and the nights are always cool.

The coolest of the valleys is Sonoma, and perhaps the best adapted for vine-growing, though vines grow in them all. Here is a pleasant country-society, too, of vintagers, and an access to the city in a few hours by coach and steamboat. Vine-land can be bought here quite cheaply, and market is near at hand. Wheat, however, does not do so well in Sonoma as elsewhere. The other valleys are being opened by railways, and contain the best wheat lands and excellent vineyards. There are very rich wheat lands in the Russian River Valley, and beyond it, which now can be bought for from $5 to $25 an acre, and which in a year or two will be very accessible. The climate is healthy here, though warm in summer; the scenery is attractive, orchards flourish, and with the sea on one side, and a railroad connecting with the Bay at Petaluma or Vallejo, they will be near the outside world. The country towns have good schools, and they are all near the city. Beyond this, there are said to be good and very cheap farm-lands in the Humboldt region—a part of the country I have not explored. There is a large breadth of land about the head-waters of the San Joaquin still open for settlement, to be bought for $1.25 or $2.00 an acre. A tract of land of 200,000 acres, wheat land, in Merced county, can be

bought at Government prices, and wheat farms at $5 per acre, with credit for a part of the purchase-money.

The most attractive parts of the whole State for a farmer or vine-grower, with capital, is the neighborhood of the Bay. Here in Contra Costa, Alameda, and Santa Clara counties, are the richest wheat lands in the world, the most luxuriant orchards of every variety of fruit—the quince and the olive growing side by side—and some good vine-lands. The climate is perfect; mild in winter, and not too hot in summer; market is close by; schools and churches are near; railways and steamboats connect with the outside world. Here, if anywhere in America, could be built beautiful country homes, surrounded by fields rich with profitable harvest. But land is high, from $50 to $100 an acre, though a crop of from forty to seventy bushels of wheat could be reasonably expected, which would be a handsome return on the cost, both of land and cultivation.

The farmers in these counties are rich. Vine-growing here is still an experiment, and no good wine has been made in the whole region. Grapes, however, must pay well. Orchards have been overdone, and scarcely repay, except as a luxury.

Of the south of California—the sunny and fertile region about Los Angeles and Santa Barbara—I have spoken before. In a material point of view this is undoubtedly the most desirable part of the State for an immigrant; that is, land in proportion to its price will yield more to the cultivator. He can grow here oranges, lemons, almonds, figs, olives, and the rarest vines. The vineyards bear most beautifully. The

drawbacks are the want of water, which, however, in certain localities, can be obtained by a little outlay, the want of good harbors, and, above all, the low educational and moral status of the population. The climate, too, though not oppressive, is enervating. A combined immigration of Yankees could easily overcome many of the moral disadvantages which result from the "Southern" and Spanish influences, and, I fully believe, could make those counties one of the gardens of the world. There is an opening to immigration now, from the fact of several of the large estates being in process of breaking up. Sheep-raising could be carried on here with great profit. But the great wealth of this region must always lie in its fruit, and whatever of these can be condensed or preserved for market will always pay. The problem of a first-class wine they have not yet solved.

The other portions of the south, such as San Bernadino, Tulare, and Fresno counties, though containing some beautiful fertile valleys and much undeveloped wealth, are in general too desolate and barren and too remote from market, to attract the immigrant farmer.

The true policy for a new settler coming here would be to purchase soon after the Pacific Road is finished, as the labor and capital which will pour in with this will raise most of the valuable grain-lands of the State to a high point. Whether, on the whole, a family can live here as cheaply as in the Western and Atlantic States, is a difficult question.* Flour is

* I copy portions of a bill at a first-class retail grocery. Best table butter, 45 cents; corn-meal, 4 cents per pound; buckwheat, 9 cents; roast coffee, 40 cents; 8½ pounds common sugar, $1.00; 1 dozen eggs, 40 cents; 50 pounds

at about half the price of the New York market; meats are a little cheaper, and would be far cheaper but for the scarcity of cattle since the destruction by the drouth. In general, hereafter, meat will be much lower. Clothing is about the same; but the high price of labor and the extravagant habits of the people (a bequest of the mining era) raise all small expenses. The measure of the economy of a population is the subdivision of money. In Germany we have change to one-tenth of a cent; here the lowest change is the dime. And in this, as with our uncertain standard of value in the East, the small shopkeepers get the advantage of the consumers.

I was assured, on good authority, that the overchange taken in this way by WELLS & FARGO for their postal envelopes range between $25 and $100 a day.

It has seemed to me that, on the whole, every householder's expenses were about thirty-three per cent. greater here than at home, with less comfort for the money—that is, the paper dollar in the East is about equal to the gold one in California.

The following are the views of an intelligent observer as to the advantages of the "Foot Hills":

"Freights from the lower coast range from $9 to $15 per ton. Farm produce cannot be sent from the counties below San Luis Obispo to this market as matters now are, at an average of less than $10 per ton, or half a cent per pound, for wheat, barley, and oats. A farm in San Diego county may seem very cheap at $10 per acre, but may, in fact, be very dear, if wanted for grain crops, at the pre-

flour, $1.60; 7 pounds crushed sugar, $1.00; 3½ pounds farina, 50 cents; 1 quart cranberries, 25 cents; 1 pound chocolate, 49 cents; flour by the barrel, about $7.00.

ent prices of transportation. At present, very little produce besides butter and cheese can be sent to San Francisco at a profit from counties below Monterey. Persons who buy for a prospective value, expect to wait some years until cheap transportation or home markets have brought up the value of lands. But the greater number of those seeking homes cannot afford to wait for years. They want a market as soon as possible, where any surplus produce can be disposed of at a profit. The proximity or remoteness of a market, with high or low rates of transportation, makes the difference between a prosperous farmer and one who can hardly make both ends meet.

"Lands in the Foot Hills are relatively near to market. So long as there is a population in the mountains, there must be a market for all the crops which can be raised in the Foot Hills. We have seen hay sold at $60 per ton which had been drawn a moderate distance into the mountains, when the same hay would have been a drug in the valleys at $10 to $20 per ton. The heat, which is so often a bugbear, not only ripens crops, but brings all sorts of fruits to perfection. There is also a greater rain-fall upon the Foot Hills than in the interior valleys. It is harder work to cultivate a hill-farm; but there are advantages which more than balance this one drawback. Nearly all these lands have an abundance of wood, without which no farm is ever complete. Besides, they are generally well watered, either by springs or running brooks, and the lands being natural water-sheds, the crops can never be drowned out by the winter floods. During the present year there is a considerable breadth of valley land which does not produce much more than half a crop because of the winter floods; while hill lands invariably mature large crops. The large wheat farms are all very well; but most settlers have not the capital to buy and stock them. They want the best thing for present purposes; and in this view we doubt if there are any lands which can be made available for so many uses as the cheap lands in the Foot Hills of the coast range, and more particularly of the Sierra. They are picturesque, have greater natural resources, more moisture, and besides being adapted to grain and hay, are always good fruit and dairy lands."

CHAPTER XXVIII.

THE AMERICAN PALESTINE, OR CORRESPONDENCES BETWEEN THE PACIFIC COAST AND SYRIA.

I HAVE often been struck, in traveling through California and Nevada, with the old Bible descriptions of nature and scenery, as applicable here; and have found a kind of constant exegesis or commentary in my journey, on the vivid imagery of the Hebrew prophets and poets. The country seems a kind of American Palestine. It may interest my readers to notice a few of these correspondences.

The language of the Jewish law in describing the favored land of Judea, into which the children of Israel had been led, pictured it (Deut. viii. 8-9) as "a land of wheat and barley and vines and fig-trees and pomegranates; a land of olive-oil and honey; a land wherein thou shalt eat bread without scarceness; thou shalt not lack anything in it; a land whose stones are iron, and out of whose hills thou mayest dig brass (copper)."

This catalogue of productions corresponds exactly to that of Californian agricultural wealth, and copper will be yet one of the great exports of the Pacific coast.

One of the earliest pictures of Jewish pastoral life represents Abraham's servant, after his meeting with Rebecca, feeding his camels "with straw and provender (or barley"). (Gen. xxiv. 32). The modern

traveler still feeds his horses in Palestine on straw and barley; and in California that is his only "feed" wherever he journeys, for there is no hay, and wild oats cover the valley and hills of the San Joaquin as they do Bashan and Carmel.

As he travels on toward the Foot Hills, he often watches the numerous hawks' nests on the top of dead trees, precisely as he sees them on the high Lebanon; and the self-acting water-wheels which supply water to Yankee houses and farms in Calaveras, will remind him of those which supply the dwellings on the plains of Orontes; and in the artificial ponds and reservoirs for watering the vineyards in Tuolumne, he will recall the description of "the pools of water to water therewith the wood that bringeth forth trees" (Ecc. ii. 4) in Solomon's vineyards. Here, too, he will see the mulberry, even as in Palestine, and the cactus growing wild, and grounds surrounded with huge hedges of cactus, as in Syria. The plains covered with wild mustard will recall the valley of Jordan, and in both he will hear of traditions of the mustard becoming almost a tree, for "the fowls of the air to lodge under the shadow of it." In both countries the cabbage is perennial and becomes a shrub or tree—one being credibly reported in the south of California as some twenty feet high.

When Job described the "brooks which are blackish by reason of the ice, and what time they wax warm, they vanish; when it is hot, they are consumed out of their place; they go to nothing and perish; the troops of Tema looked for them, they were confounded because they had hoped; they came thither,

and were ashamed" (Job xv. 15-19); he pictured the experience of the modern traveler in the Sierras, who crosses with difficulty a swollen torrent in the spring, and returns in the summer, after a hot day's ride, thirsty for water, and is "confounded," because the stream "is consumed out of its place." The Californian experiences of a mountain on fire, and of accidental fires consuming large grain-fields, seem to have been also familiar to the Jews, for one of David's similes is: "As fire burneth the wood, and as the flame setteth the mountain on fire" (Ps. lxxxiii); and one of the provisions of the law was that "if fire breaketh out and catch in thorns, so that the stacks of corn, or the standing corn, or the field be consumed, he that kindled the fire shall surely make restitution" (Ex. xxii. 6.) When David speaks of "water-spouts," he alludes to a phenomenon which sometimes appears in the midst of the Sierra Nevada, for I have heard authentic instances of travelers and their vehicles swept away from a road into a mountain ravine by these sudden outbursts of water, as they are sometimes at this day in the Lebanon.

The mining towns of Nevada, nestled among the bare and mighty hills, will recall how the bare mountains of Judea were "round about Jerusalem," and the comfort in "the shadow of a great rock," as one descends the treeless slopes to Carson river, will remind one of that beautiful image of the Hebrew poet.

The "cattle on a thousand hills" is as true of California as once of Palestine, and the shepherds leading the flock and carrying the young in their arms may

be seen now on the hills of Los Angeles, as once on those of Judea.

The many warnings in the Bible against slipping and falling, and the imagery taken from the narrow pathways which traversed the ravines of Palestine—such as "their feet set in slippery places," "they shall slide in due time," "ways like slippery places in the darkness"—might be drawn now from the experiences in the cañons of the Pacific mountains, where a single misstep of your horse will at any moment plunge you down a frightful abyss.

The tremendous land slides of the Yosemite and other cañons must have had their analogy in the Lebanon or other Syrian ranges, for one of Job's grand figures is of "the mountain falling cometh to nought, and the rock is moved out of its place."—Job x., iv., 18.

The vivid description of the miner's work, in the 28th chapter of Job, though badly translated, gives in the original a remarkably similar picture to the scenes which meet the stranger's eye in the quartz and silver mines of the Foot Hills and the Sierras. (I will adopt my own rendering):

"Surely there is a vein for silver and a place for gold where they strain it. Iron is taken out of the earth and brass is molten out of the ore. He (the miner) setteth an end to darkness, and searcheth out all secret things;" * * * and (v. 4) he "breaketh a shaft from where men dwell; they (the miners) are unsupported by the feet; they hang down far from the [dwellings of] men; they swing to and fro;" and

again (v. 9), "He putteth forth his hand upon the hard flint, he overturneth the mountains by the roots; (v. 10), he sinketh shafts among the rocks; (v. 11), he bindeth the floods from overflowing" (*i. e.* he stops the waters in the mine).

There are certainly most of the mining processes familiar to the Californians represented in the oldest Hebrew poetry.

The great importance of wells and places where water is found on a journey, which appears so much in early Jewish history, recalls one's observations in the saliferous deserts of Nevada, and the barren wastes of Eastern California, where the stations are wells, and all bargains or treaties must be made near some fresh-water spring.

The terrible experience of California in the drouth had a correspondence in that of the inhabitants of Palestine. Five years ago, throughout the interior of the State, for some months the "Heaven was as brass, and the earth as iron;" and the whole farming population could have repeated the fearful lamentation of Joel, "Tell ye your children of it, and let your children tell their children, and their children another generation, that which the palmer-worm hath left hath the locust eaten, and that which the locust hath left hath the canker-worm eaten, and that which the canker-worm hath left hath the caterpillar eaten. * * * Howl, all ye drinkers of wine, because of the new wine, for it is cut off from your mouth. * * * He hath laid my wine waste and barked my fig-tree. * * * The field is wasted, the land mourneth, for the corn is wasted,

the new wine is dried up, the oil languisheth. Be ye ashamed, oh ye husbandmen: howl, oh ye vine-dressers, for the wheat and for the barley, because the harvest of the field is perished. The vine is dried up and the fig-tree languisheth; the pomegranate tree, the palm-tree also, and the apple-tree, even all the trees of the field are withered. * * * The seed is rotten under their clods, the garners are laid desolate, the barns are broken down, for the corn is withered. How do the beasts groan. The herds of cattle are perplexed because they have no pasture; yea, the flocks of sheep are made desolate. * * * The beasts of the field cry out also unto thee; for the rivers of waters are dried up, and the fire hath devoured the pastures of the wilderness." Every one of these dreadful experiences were felt in the interior of California in that terrible year (1863) of the drouth. The vines, the figs, the pomegranates and apples (in what other country could these *two* fruits be mentioned as growing together?) withered and perished. The barley and wheat harvest in many districts was destroyed.

The cattle died by the tens of thousands from thirst and the want of pasture, and what vegetation the drouth spared, fire consumed, and armies of insects devoured. The State has never recovered its wealth of cattle destroyed in that one summer.

The allusion in Joel to the seed rotting in a dry season after the harvest, is true both of Syria and California, and of few other countries, for the planting-time in both is in the autumn, and if the winter rain

be too long delayed, the seed rots in the ground. This resemblance brings us to the most prominent correspondence between the two countries—and that is the similarity of seasons. When a New-Englander reads in the Bible of "the early and latter rain," it makes but a vague impression on his mind, but a Californian, whose summer is a dry season, knows how vitally important to the crops are the autumn and spring rains. And when the Jewish prophet promises as a blessing to the favored people "The treader of grapes shall overtake him that soweth seed" (Amos ix.), and the law holds forth that "If ye walk in my statutes the vintage shall reach unto the sowing time" (Lev. xxvi.), and "Your threshing shall reach unto the vintage;" and "The plowman shall overtake the reaper;" the words may be unintelligible at first to a resident of our eastern coast, but to the inhabitant of the Pacific slope, they describe precisely his most fortunate seasons.

When the wheat harvest is so full as to crowd on the vintage, and the grape crop so rich that the pressing reaches into the autumn plowing and sowing, then is the year a bountiful one to the farmer of the Pacific coast.

The old proverbs, too, have a new meaning here: "He will not plow by reason of the cold," is the plowing just before winter; and "A sweeping rain that leaveth no food," is the too early autumn rain which injures the wheat-stacks left in the air, and utterly destroys the pastures. For both in Carmel and California, the hills are covered with a kind of "growing

hay," a dried grass or clover, which retains its nutritive properties, and is excellent pasture, but which the first rains utterly ruin.

In California, as in Palestine, the west or southwest wind brings rain, and cold or clear weather comes out of the north, while the east wind is dry a one.

Syria has lost its ancient wealth of fruit and trees, and California is rapidly approaching the moderate standard of other countries; but there are still vines in the old Spanish missions whose bunches would almost rival those famous grapes of Eschol. And upon many vineyards, one may still behold the wine-pressers, "With dyed garments, and garments red like him that treadeth in the wine-vat," even as the Jewish vintagers of old.

The almond-trees in the gardens of Alameda, with their snowy-white heads, will explain that description of old age by Solomon, "When the almond-tree shall flourish," and the olives of Los Angeles will recall a hundred vivid similes and pictures in the Hebrew poets. One finds "The good olive grafted on the wild olive," and as you pass an old olive-tree with young shoots growing symmetrically around it from its roots, you understand the simile, "Thy children shall be like olive-plants round about thy table."

"Though the labor of the olive should fail" (Haba. iii.), has a new meaning, for no tree requires so little labor; and when you see the ground covered with its immature flowers, you appreciate Job's comparison: "He shall cast off his flower like the olive" (Job xv. 33). And in autumn, after the shaking, when one or

two olives remain standing out against the gray sky, the traveler will think of the words, "Yet gleaning grapes shall be left in it, as the shaking of an olive-tree, two or three berries in the top of the uppermost bough," &c. (Is. xvii. 6).

In California one hears of "The first and second crop of figs," spoken of in the New Testament; and as one rests in a mountain cañon, under the gloomy shadow of the weird evergreen oak, with wild fantastic branches and dense foliage, one can understand why the corresponding evergreen oak of Palestine and Syria was so often chosen as a place of wild pagan rites, and was so frequently alluded to in the denunciations of the prophets.

There are Dead Seas and Salt Lakes in both countries; saliferous vegetations; and the hot springs of Tiberias, with their deposits of sulphur and salt, and the geysers north of Damascus, correspond to the geysers in the Sierras. Great deposits of asphaltum or bitumen are found in both, and not much petroleum. Earthquakes are still felt in each, and the mirage astonishes the traveler near the Salt Lake as it does near the Dead Sea, and in both a sirocco is experienced. Wild flowers, without scent, cover the fields of both Syria and California with the gayest garments; the acacia, the walnut, and the mistletoe, are characteristic of each; the edible cactus is in both, and (I think) the wild pear.

A last unfortunate correspondence is that each has every variety of the best grapes and no good wine.

CHAPTER XXIX.

EFFECTS OF CLIMATE ON RACE IN CALIFORNIA.

TWENTY-ONE years is the whole duration of San Francisco, and of what may be called Anglo-American California. This is much too small a period of time to permit any material race-changes to be seen. Yet, if ever a change of circumstances, a different climate, changed diet, and new relations to the world, could form a new human variety, then certainly a fresh race would spring up on the Pacific coast.

The mixture of blood which, with an insular climate, has formed from Northmen, Danes, Anglians, and Saxons, a human variety so different from each of its elements —the English-speaking race—is not half so great, nor the change of circumstances half so radical, as that which has taken place here, and which will inevitably, in the long course of ages, form a fresh Race in the human family on the western shores of this continent.

I have spoken of the singular correspondence between California and Nevada and Syria.

I have often wondered whether the Asiatic climate of California would hereafter produce any minds on whom nature would stamp itself, as it did on the wonderful Hebrew poets, or who could be thus inspired by devotion and worship.

But alas! blood is stronger than isothermal lines, or

the influences of ocean currents and prevailing winds. The Anglo-Saxon mind can never be a seer into the invisible world of devotion, and it is doubtful if the American mind will ever listen patiently enough to the voices of nature to be able to interpret them for men of all countries and times. Moreover, it must be admitted that mining occupations are not a very good foundation for poetry and devotion.

Still, even in these twenty years, climate and new circumstances have begun to produce their minute but certain effects. I have examined, as a student of races, very carefully the prevailing physical types on this coast, and I think I am not mistaken in noting a change which has already begun.

No one who has watched closely the physical type which is gradually being formed in the older States, from mixture of races and the influence of climate, can doubt that the physical beauty of the English-speaking race in America is improving. One can travel in no public conveyance now in the Eastern States without being struck with the delicacy and regularity of profile, and the personal beauty of some of the passengers, whether men or women.*

Our race is becoming acclimated, and is living more sensibly, and with the blending of so many related races, is elevating its physical type.

The same result, from more manifest causes, is taking place in California. Here, picked men in the flush of life from most European races have gathered.

* Since this was written, an intelligent English traveler, Rev. Mr. Zincke, makes a similar observation.

They have mainly occupied themselves with vigorous pursuits, such as mining, or with out-door occupations, such as teaming and farming. They have had the best food, plenty of both fruit and meat, and (on the coast) the best climate which the Anglo-Saxon has ever enjoyed; equable, sunny, cool, and invigorating. In the interior they have had a dry, mountain, Asiatic climate, with great extremes to struggle with, but which has not yet produced its natural effect on the physique, as the people so constantly emigrate to the coast.

The effect of all these combined causes on the physical type of California is, that it is especially the land of handsome men. One sees great numbers of fine manly profiles, with full, ruddy cheeks, and tall, vigorous forms. The spare, dry, nervous type of the eastern American is not common in the interior. City residents, of course, are always inferior physically to the rural population; but even the San Franciscans begin to have an English look. I am constantly meeting young, ruddy, round-faced business men, whom I mistake for Englishmen, but who are Yankee-born. Still, the curse of this city, *overwork*, is telling on the physique of the people. The climate tempts to do too much, and, though there is little sickness, life snaps off suddenly. The principal diseases of the city seem to be rheumatic, and those which affect the throat.

In the Sierras, especially at Virginia City, there seems no doubt that the rarefied atmosphere has expanded the chests of the people, even in these few years. The impression prevails generally in California that the climate favors the prolific power of both

animals and human beings; both certainly mature earlier than in the Eastern States. Physicians, however, are inclined to trace the remarkable effect on women, observed here, as much to change of climate as to any peculiar power in it. I have heard of some very large families here—one of twenty-eight children, all of one mother. But it should be remembered that the great checks on increase of population are always artificial, or economical, rather than want of physical power: and here luxury does not make children a weariness, or poverty a burden.

The children in the country, and from the wealthier classes of the city, seem more ruddy, healthy-looking, and prettier than ours in the east. Among the working people of San Francisco they are as pale, peaked, and nervous, with brains as much overworked, as in our cities. It is said that babes do not suffer from teething, as do ours, and mothers do not dread "the second summer," as at home.

The young girls of the city show a great deal of beauty, and such rich bloom of complexion as we seldom see in the Atlantic border.

The coast physique will, no doubt, be merely the American type improved. The inhabitant of the Sierras and the central river bottoms will ultimately become more Asiatic or Arab-like in type—darker, sparer, and, on the whole, with less muscular vigor—for the common diet of the plains will more and more be the delicious fruits and vegetables of that region; and a fruit or vegetable-eating race is never so vigorous or energetic as a meat-eating.

The south of California will tend toward an Italian or Moorish type, under the enervating influence of climate and a bountiful fruit-diet. A "southern" aspect is already very perceptible even in the pure Anglo-Saxons of Los Angeles and its neighborhood.

Still, in all these theoretical remarks, I desire to enter a most distinct *caveat* against a thesis which is now being maintained by a distinguished American scientific authority—that climate is all-powerful in determining the mental and moral tendencies of a people. Climate is only one element in forming a race; many other circumstances enter, among them, first of all, *blood or race*—that is, inherited tendencies, strengthened by the influence of a long line of ancestors. All the facts of the science of ethnology are against the theory of climate as the determining cause.

Even color cannot be explained by climate alone. Isothermals are strong, but they can never produce "the love-songs of Persia in the dells of Sonora," or the poetry of the Hebrews in the cañons of the Sierras, or "the civilization of Peru" on the American shores of the Pacific, any more than they have made Europe and Asia alike, or even Asia like itself, in the same temperature and under the same rain-fall. The power of the principle of Inheritance, though modified in the course of ages as to the qualities it transmits by Natural Selection, is far stronger than most influences of climate.

In observations so purely speculative as these, looking to far centuries in the future, I may be permitted to note what will be the inevitable political effect of

the imperceptible but powerful agencies which are now slowly building up a new race on the Pacific. Five hundred or a thousand years from now, when we have an Anglo-American Chinese-like empire of hundreds of millions, east of the Rocky Mountains—the leading community of the world—there will be another magnificent republic, or series of republics, on the Pacific coast, beginning their independent existence of centuries. Whether, in that distant period, the Imperial Union would consent or not to a voluntary separation of its superb Pacific provinces, we cannot predict, but we can assuredly prophesy that whenever a great population on this coast desire to be independent, they will certainly become so. A world in arms could not subdue such a remote region as this, or reannex it by force to the United States. Of course, for generations to come there will be an enthusiastic loyalty on this coast to the Union. But the influences of climate and circumstances are too strong. This is now a separate world from ours. Its climate, its fauna and flora, its productions, its mode of agriculture, its arts, its relations to other countries, its interests, its questions of finance, government, law, and morality, are all different from our own. Everything here is peculiar and original, even now. Mighty barriers of desert and mountain separate this region now, and always will, from the civilized world. Two or three railroads over this vast wilderness will be mere threads of connection with Europe and America.

And if there be such contrasts and differences now in twenty years between the people and region cast

and west of the Rocky Mountains, what will there be in a hundred or five hundred years? It is true that the ideas, the manners, the government, the religion implanted here are American—yes, Puritan. These they will always be, but there can be no doubt that in a remote future they will be embodied in a new race of the English-speaking family, and under a separate and independent popular government.

This will be the "NEW WEST."

FINIS.

ERRATUM.—On page 89 read ATTILA for ATILLA.

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